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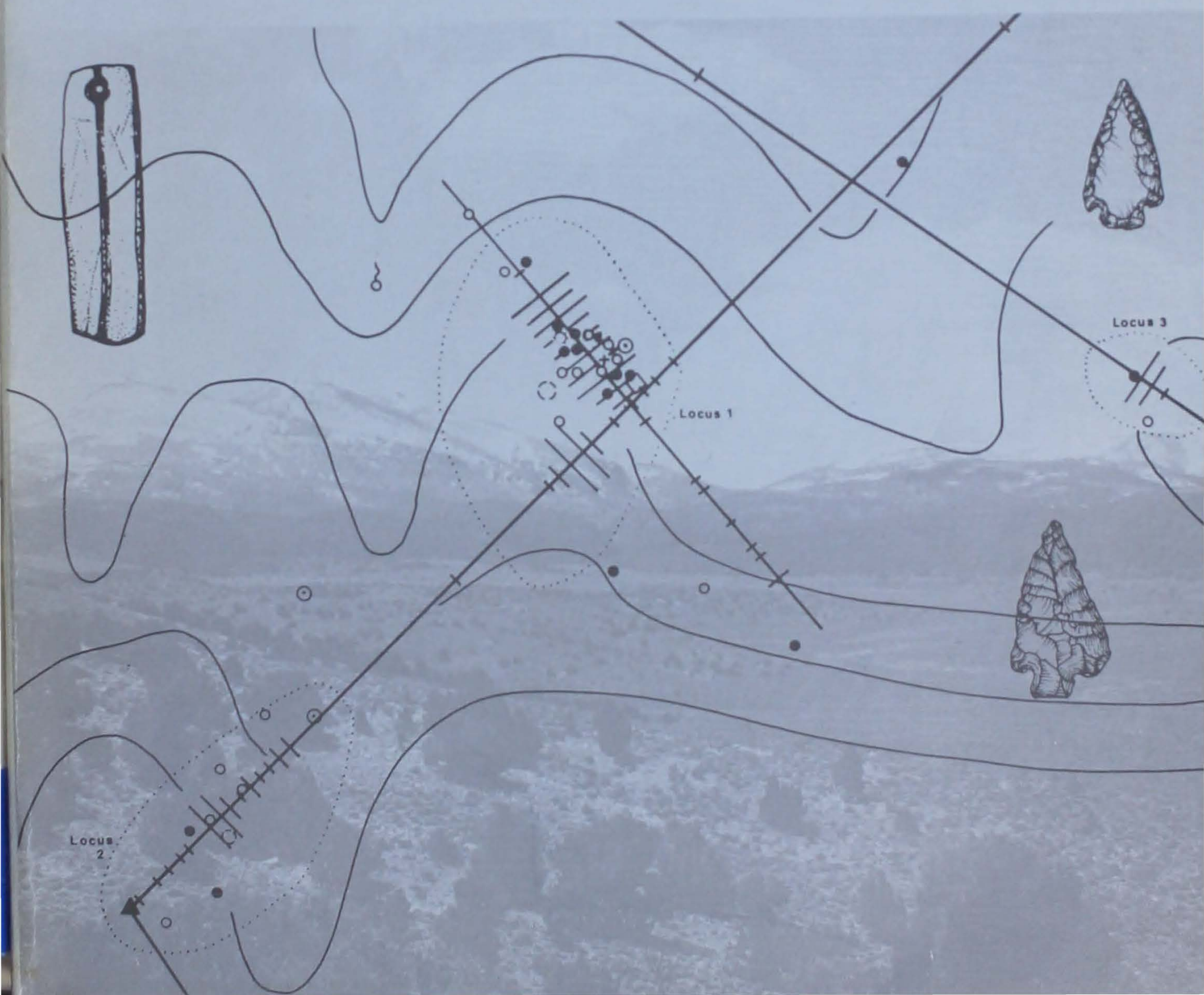
Cultural Resource
Report No. 11

An Archeological Evaluation of Upper Ellsworth Canyon, Nye County, Nevada



AN ARCHEOLOGICAL EVALUATION OF UPPER ELLSWORTH CANYON, NYE COUNTY, NEVADA

by

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with

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EDITORS NOTES

Although this report deals with a small area in central Nevada, it presents several approaches of Regional interest. The research design is formulated after Binford's work on hunter-gatherer subsistence economies, particularly differentiating between forager and collector strategies. It represents a good example of testing the implications of this model, illustrating both the limitations and potentials of this kind of research within a CRM context. Of further Regional interest is the rating system developed by IMR to evaluate National Register significance. While none of the 30 prehistoric sites qualify for National Register listing, it demonstrates the range of data available from marginal sites using a comprehensive approach.

ABSTRACT

During August 1983, Intermountain Research conducted an intensive archaeological survey of approximately 1000 acres near Ellsworth Canyon, in the Toiyabe National Forest, Nye County, Nevada, for Cominco American, Inc.. Forty-five sites were identified: most were isolates or small sites; seven prehistoric sites and one historic site exhibited potential for National Register of Historic Places eligibility.

In order to evaluate these sites, Intermountain Research tested the eight locations during October 1983. Research goals were directed toward the identification of subsistence and settlement patterns, chronology, and historic economy.

Research results revealed that prehistoric utilization of the area spans a period of 7000 years, with a peak occurring during the Middle Archaic period (1500 B.C. to A.d. 500). Subsistence and settlement appears to reflect a logistically organized collecting system. Six prehistoric sites functioned as field camps and one as a procurement and processing location. The historic site is related to mining activity, ca. 1890-1920.

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ACKNOWLEDGEMENTS

This project was an Intermountain Research team effort directed by Robert Elston, Principal Investigator: Michael Drews served as Project Archaeologist and principal report author; Cashion Callaway was Project Manager; and Charles Zeier acted as report production editor. Robert Clerico was Field Crew Chief and authored the artifact descriptions; Jane Armstrong contributed historical interpretation. The field crew were Leslie Steidl, Susan Stornetta, Mike Trinkle, Dennis Bill, Maggie Brown-Thomsen, Shelly Moore, and Rich Olsen. Maggie Brown-Thomsen prepared the artifact catalog, and Shelly Moore prepared artifact illustrations, maps, and figures. Eleanor Curtis provided secretarial support.

The work was funded by Cominco American, Inc., and special thanks are extended to Danni Elder and Mike Hepp of CAI for their cooperation throughout the project.

The interest of Arnie Turner, Toiyabe National Forest Archaeologist, and Alice Becker, Staff Archaeologist for the Nevada Division of Historic Preservation and Archaeology, contributed significantly to the success of the project.

Chapter 1

INTRODUCTION

Cominco American, Inc. (CAI) plans to conduct extensive minerals exploration in the northern Paradise Range, approximately nine miles northeast of Gabbs, Nye County, Nevada (Figure 1). Gabbs and Lodi Valleys are west of the Paradise Range, while Ione Valley lies to the east and Smith Creek Valley to the north. The study area is under the administrative jurisdiction of the Toiyabe National Forest headquartered in Reno, Nevada.

Cominco American, Inc. retained Intermountain Research (IMR) to perform an intensive archaeological survey of the project area to locate and describe all cultural resources existing there. Intensive survey of approximately 1000 acres was conducted by IMR between August 15 and 19, 1983.

Based on survey results, IMR recommended to CAI that selected sites required further evaluation to determine their potential for eligibility to the National Register of Historic Places. CAI authorized IMR to conduct these studies; the field work was carried out between October 3 and 8, 1983. All phases of field activity were conducted under the aegis of a U. S. Forest Service Special Use Permit issued by the Toiyabe Forest Supervisor's Office, Reno, Nevada.

The purpose of this report is two-fold: to describe the results of the intensive archaeological survey and to present a detailed evaluation of selected sites. The report is divided into ten chapters, of which this introduction is the first. The environmental and cultural settings of the project area are dealt with in the second and third chapters. A focused research design is provided in Chapter 4; investigative methods are described in Chapter 5. Results of the survey and later site evaluation work are detailed in the sixth and seventh chapters. All artifacts collected during field work are described in Chapter 8. Relevant research questions posed in the research design are assessed in Chapter 9. National Register and resource management recommendations are the subject of the final chapter.

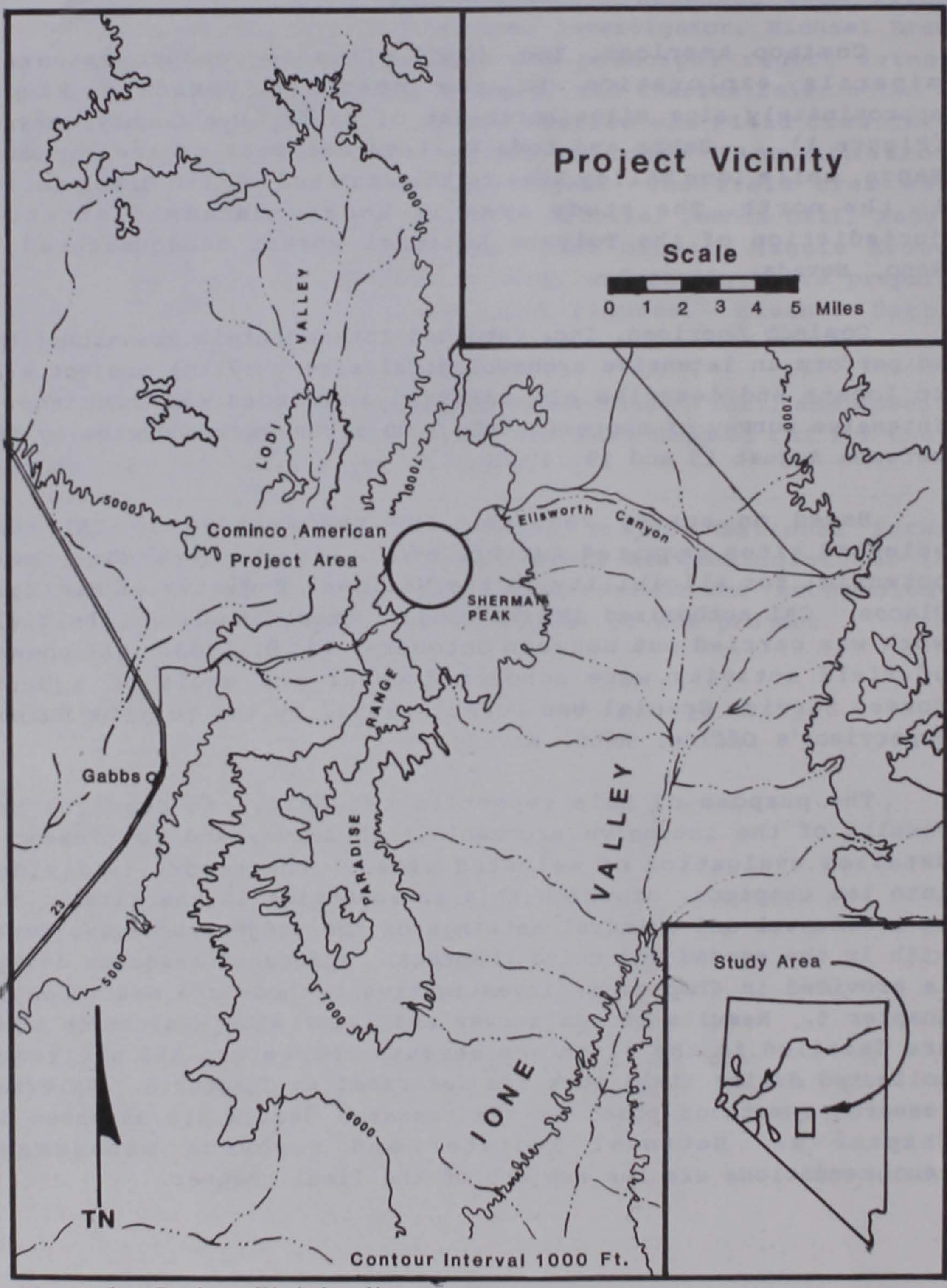

Figure 1. Project Vicinity Map

Chapter 2

ENVIRONMENTAL SETTING

The project area is an irregularly shaped, 1000 acre parcel in a small valley near the head of Ellsworth Canyon (Figure 2); elevations range from 7200 to 8100 feet. Sherman Peak and adjacent crests are east of the project area. Legal descriptions are given in Table 1.

Table 1. Legal Description.

NW Corner	T.13N. R.37E.	SW1/4, SW1/4, NW1/4 of Sec. 26
SW Corner	T.13N. R.37E.	SW1/4, SW1/4, NE1/4 of Sec. 34
SE Corner	T.12N. R.37E.	NW1/4, NE1/4, NE1/4 of Sec. 2
NE Corner	T.13N. R.37E.	NE1/4, NW1/4, SW1/4 of Sec. 25

Access is via a dirt road extending north from its intersection with State Route 844 (91). Earlier access was probably via Ellsworth Canyon, the project area's northeast flowing drainage, or through Craig Canyon to the south. Numerous trails presently traverse the project area. In addition, mining activity at the Vindicator and Return Mines has altered portions of the landscape.

Geology/Geomorphology

The geology of the Paradise Range is typical of mountain ranges in the Great Basin physiographic province. It is steeply thrust-faulted along its western flank and consists primarily of upper sequence, Tertiary volcanic rocks of dacitic to rhyolitic composition. Vitaliano and Callaghan (1963) have mapped extensive areas of greenstone, limestone, and clastic rocks of Permian age within the formation. They also note areas of hydrothermal alteration in the vicinity of the project area.

The majority of the project area, however, lies within Quaternary alluvium extending north from Sherman Peak (8657 feet) to the head of Ellsworth Canyon. This alluvium is characterized by a series of ballenas cut by intermittent streams and inset

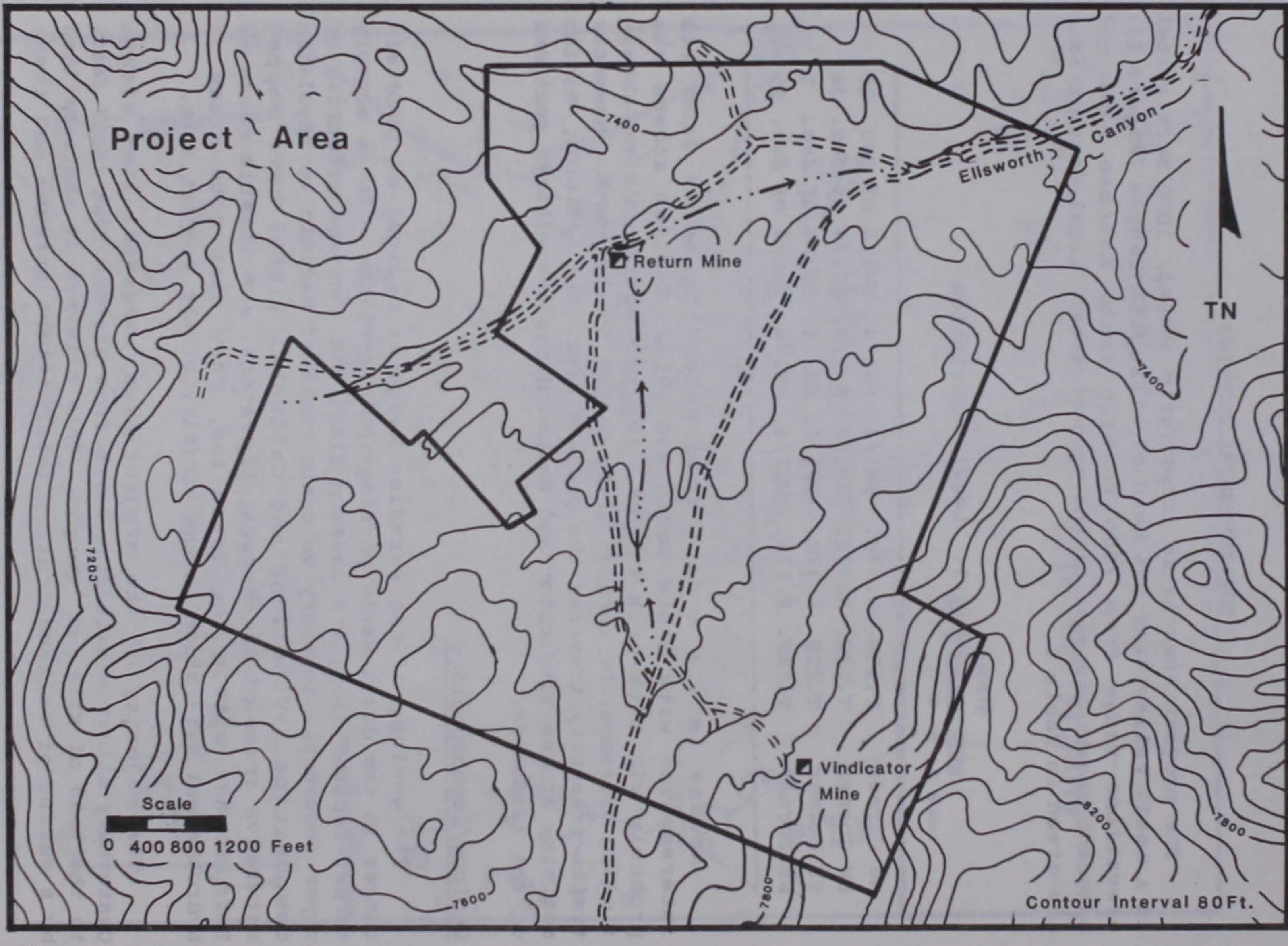

Figure 2. Project Area Map

fans. Slopes range from 1% on the alluvium to a maximum of 70% on the western slopes of Sherman Peak.

Soils range from fine grained, sandy silts on the alluvium to medium coarse, sandy loam on mountain slopes. Light colored clays are evident along the western slopes of the project area where hydrothermal alteration is indicated. Road and tractor cuts show that soils are shallow on the mountain slope, rarely exceeding 30 cm in depth, and lack any horizonation. Stream cuts in the alluvium show greater deposition, but again, soils lack horizons. Occasional basaltic outcrops occur on steeper slopes along the periphery of the area; pea to cobble-sized clasts of basalt, sandstone, and quartzite were noted on the surface.

Hydrology

Numerous feeder streams to Ellsworth Canyon originate in the project area valley. The main drainage, flowing along the valley's west side, is the most deeply incised. Intermittent stream channels flow from the south, east, and west into this major feature. A developed spring lies to the north of the project area at the head of Ellsworth Canyon. Others occur along the eastern slopes of the project area and a bog was noted near the Return Mine. Game trails and scat were observed in association with the springs.

Vegetation

Upper Sonoran Zone vegetation dominates the floral community. Pinyon-juniper forest characterizes the ecozone; open stands of big sage add vegetation diversity. The pinyon canopy in some places, especially steeper eastern slopes, creates a closed cover forest with a marginal or non-existent understory. Where the canopy allows enough light, the understory consists of big sage (Artemisia tridentata), bitterbrush (Purshia tridentata), Mormon tea (Ephedra sp.) and phlox (Phlox sp). Along forest margins, buckwheat (Eriogonum sp.), Indian paintbrush (Castilleja sp.), rice grass (Oryzopsis hymenoides), and rabbitbrush (Chrysothamnus sp.) are common. Less floral variety is present within the open sage environment. Here, grasses, both introduced and native (Bromus sp. and Elymus), create a sparse understory.

Fauna

The ecotone setting of the project area provides an ideal habitat for a variety of wildlife. Rabbits, badger burrows, coyote scat, dove, owl, magpie, and various raptors were identified during the survey; bobcat may also be present. Cole (1968), Reynolds (1969), and Tausch (1973) suggest that forest openings and borders, generally those areas with highest vegetation diversity, are preferred habitats for mule deer (a herd of ten was observed during field work). Prehistorically, however, only small populations of mule deer occupied the Great Basin (Thomas 1983:51). After European contact, as settlement disturbed large habitats, the mule deer population increased. More than likely, the species replaced pronghorn antelope and bighorn sheep in the project area.

Chapter 3

CULTURAL SETTING

This chapter is devoted to a summary of regional culture history, beginning with prehistory, then ethnography, and finally, the historic period.

PREHISTORY

The prehistory of the Great Basin can be divided into four stages as outlined by Elston (1983); Pendleton, McLane, and Thomas (1982); and Thomas (1983). The stages follow a climatic sequence proposed by Antevs (1948), and can be identified by means of a temporally sensitive projectile point typology.

The pre-Archaic period began around 10,000 B.C. and lasted until 6,000 B.C. Climatic conditions were cool and moist, but gradually became temperate and somewhat drier. Projectile points from this period, the Great Basin Concave Base series, are similar to those found in association with extinct fauna in the Great Plains, the Southwest, and the eastern woodlands of the United States, leading some researchers to believe that subsistence during the period was based on the hunting of large game (Tuohy 1968, 1974). Considerable debate, however, centers on the question of paleo-Indian subsistence. A lacustrine adaptation is also evident at this time, as defined by a distinctive artifact inventory from sites located along the shorelines of pluvial lakes (Bedwell 1973; Heizer and Baumhoff 1970). The use of upland and lacustrine resources is postulated by Davis (1978).

Diagnostic artifacts from the pre-Archaic include Lake Mojave and Haskett and Parman-type projectile points (Great Basin Stemmed series), as well as the Great Basin Concave Base series, large lanceolate and ovate knives, scrapers, gravers, utilized flakes, and crescents. Projectile points are generally edge ground and exhibit collateral flaking. Pre-Archaic sites reflect a rather restricted settlement pattern; the largest sites are on gravel bars and spits, or on high ground along the margins of extinct lakes. These sites lack structures and do not seem to be differentiated into functional types. The pre-Archaic settlement pattern best fits a foraging strategy (Binford 1980), whereby a small group typically gathers food on an encounter basis,

returning to its residential base daily. The strategy requires a high degree of residential base mobility.

By 5000 B.C., major cultural and environmental change had occurred in the Great Basin. As the climate continued to warm, lakes and streams began to dry; the resultant environmental stress probably led to a major adaptive change, hence the Archaic period. Archaic subsistence required the exploitation of a diverse resource base, as evidenced by a transhumant settlement pattern and functional variation in site types. Rather than a foraging strategy, subsistence focused on the collection and storage of food, including lower ranked seed resources. Unlike foragers, the residential mobility of collectors is restricted in favor of exploitation by task-specific groups who often stay away from base camps for long periods of time (Binford 1980). Collectors must rely on complex logistics in order to exploit their resource base.

The Archaic is divided into three phases, each of which is identified by adaptive changes in technology as well as in subsistence and settlement patterns. The <u>Early Archaic</u>, from 5000 B.C. to 2000 B.C., conforms somewhat to Antevs' (1948) Altithermal period. Population density at this time appears to have been quite low and groups probably consisted of extended families. A hunting technology, similar to that of the pre-Archaic, is still evident. However, seed processing tools are present at Early Archaic sites, suggesting the utilization of more diverse resources than during pre-Archaic times. Subsistence strategies probably consisted of both foraging and collecting. Projectile points (Pinto/Gatecliff series), smaller than those from the pre-Archaic, tend to be notched. Collateral flaking and edge grinding disappeared during the period, and the use of specialized, non-projectile point tools diminished.

The Middle Archaic, 2000 B.C. to A.D. 500, is characterized by a return to a wetter climate and a period of cultural complexity. Although this change occurred gradually, by the end of the period population levels were higher and household units, as well as village groups, were larger. The size of houses and storage facilities had increased, and a greater emphasis on territoriality and trade was evident. The subsistence strategy was based on logistic collection of resources; a full complement of functional site types is evident. Lithic tool technology remained similar to that of the Early Archaic, although greater

diversity is seen in Elko and Martis series projectile point styles.

The diversity of resources available for exploitation during this period resulted in a somewhat sedentary residential pattern. Large villages occurred along deltas of the Truckee and Humboldt Rivers, as well as along shorelines of the Humboldt and Carson Sinks. Camps, caches, locations, and stations served as subsistence satellites to these residential bases (Binford 1980; Thomas 1983). Considerable debate is underway on the degree of sedentism that occurred; at issue is whether any of the environments surrounding these large sites could support a high degree of sedentism (Heizer and Napton 1970; Kelly 1980a).

By 500 A.D., a warm, dry climatic peak was reached once again, then shifted gradually to a climate similar to modern times. The Late Archaic began about this time and lasted until historic contact. The period is characterized by a high degree of technological and social change. The bow and arrow were introduced during the beginning of the period and the use of simple flake tools ushered in the decline of biface production. A greater reliance on the exploitation of seed resources is evidenced by the appearance of hullers and various mortar forms in artifact assemblages. Projectile points consist of the Rosegate, Cottonwood, and later, the Desert Side-notched series.

The exploitation of diverse resources and multiple ecozones resulted in a shift toward a more diverse social structure. During this period, household groups, and houses themselves, became smaller. While some larger villages near river mouths remained in use, there was generally less frequent occupation of major village sites. Nevertheless, some residential bases may have seen continued, sporadic use as field camps due to their strategic locations (Thomas 1983). Bettinger (1976) suggests that during this period in the Owens Valley, base camps were established in the pinyon zone for the intensive and specialized exploitation of that resource. After about 1000 B.P., most game hunting was also conducted from these sites.

ETHNOGRAPHY

The ethnographic period began with Anglo-American contact during the mid 1800s. Steward (1938) identifies the Paradise Range as the boundary between the Northern Paiute and the Western

Shoshone. While Ione Valley, east of the project area, is considered Shoshone territory, Steward notes that during historic times, a number of Paiutes also made their homes there. Culturally, the two groups are quite similar and some local Shoshone customs may have been borrowed from their Paiute neighbors.

Stewart (1939) divides the Northern Paiute territory into distinct, but rather fluid bands. The Aga'idokado (trout eaters) from Walker Lake ranged as far east as the Paradise and Desatoya Ranges, and most likely interacted with bands of Shoshone from the latter. Ethnographic evidence suggests that the inhabitants of Ione Valley maintained political and social ties with Shoshone in Reese River Valley. The area was divided into three "districts" that included Reese River, Ione, and Smith Creek Valleys. Each area was distinct, but activities were overseen by a single chief in post-contact times (Steward 1938).

Information on subsistence and settlement in the Ione Valley is scanty. Steward (1938) offers little data for the project area, but he provides a wealth of it for Reese River Valley. Thomas and Bettinger (1976) tested Steward's data, demonstrating that the prehistoric subsistence and settlement patterns within the Reese River Valley are similar to those described ethnographically.

The proximity of the two valleys, and the interaction between their populations, permit the use of general ethnographic patterns seen in Reese River Valley to fill gaps in the Ione Valley data base. Subsistence and settlement during the ethnographic period is characterized by the seasonal round (Steward 1938). Winter was a time when most fresh food supplies were unavailable, so that stored food comprised the bulk of the Shoshone diet. Pine nuts and other easily stored resources were of primary importance. Winter residential bases were located in the hilly pinyon-juniper woodland, but rather than occupying well-defined loci, families often scattered over a broad area. While winter residential bases were located in the pinyon zone, they were also well situated for the exploitation of other resources: camps were generally located within a 6 to 8 km foraging radius of the valley floor.

Summer was a time of dispersal. In contrast to the well-defined concentrations of winter resources, summer resources were

less redundant and more scattered. In order to be closer to seed procurement localities, summer camps were moved frequently. During late summer and fall, previously dispersed groups gathered to travel as far as 60 to 80 km from base in order to participate in communal rabbit and antelope drives. During this time of year, small, temporary camps were established and fandangos were held. Thomas (1983) suggests that during these events, information on the movement of game animals and the locations of substantial pinyon crops could be exchanged.

The custom of land ownership is rare among most Shoshone groups, but Steward (1938) indicates that the people of the Ione and neighboring districts owned and protected pinyon tracts. Ownership was generally confined to areas of 100 to 200 acres and was ascribed to the local base camp. One of Steward's informants states that her family owned pinyon groves in both the Shoshone and Paradise Ranges (Steward 1938:105). When crops failed at these locations, relatives were often invited to share the harvest of another area.

Steward (1938) also reports that Ione Shoshone deliberately burned the brush in upland areas behind their winter villages, then broadcast Mentzelia and Chenopodium seed for eventual summer harvest. While not critical to the overall subsistence system, this practice did result in a reliable resource in the vicinity of a well-used residential base.

Bettinger (1976) postulates that pinyon exploitation does not appear in Owens valley until the beginning of the Late Archaic period. The existence of groundstone, storage facilities, and structures are included as part of his definition of a pinyon camp. Thomas (1971) and McGuire and Garfinkle (1976) point out that most cultural remains from pinyon exploitation are perishable and, as a result, make it difficult to identify pinyon camps. What Bettinger has apparently identified is the temporal period in which temporary camps began to be related to pinyon exploitation. The exploitation of that resource probably predates that period.

HISTORY

Historic activity in the project area was confined primarily to mining. In 1863, ore was discovered east of the area and the Mammoth Mining District was organized. There were seven

principal mines in the district, the richest being the Esta Buena Mine with ore valued at $1600 per ton in 1881 (Thompson and West 1958:523). Ores mined here included silver, gold, lead, and copper. In 1874 ore was discovered in the western part of the district, becoming the Lodi District in 1875. After its discovery, most mining activities seem to have focused on this western district: the Illinois Mine, with a 1000 foot shaft, was the principal enterprise (Lincoln 1982:174).

Ellsworth, established in 1864 and located about 12 miles west of Ione in the Paradise Range, was the town associated with the Mammoth Mining District. Growth was slow until 1870 when a ten stamp mill was constructed; the population soon increased to about 200. A post office was opened in 1866 and closed in 1884, although by 1880 the population had fallen to 20 people. The nearest railroad station was Austin, 65 miles to the north. Wagon freight was hauled via Wadsworth at the rate of $50 per ton. It is particularly interesting that the Ellsworth mill employed local Indians in all phases of its operation except management (Thompson and West 1958:523).

Lodi (often called Bob, Marble, or Illinois) was established in 1874 about nine miles north-northeast of Gabbs and seven miles west of Ellsworth. It had a maximum population of about 100 people by 1876 and boasted a blacksmith shop, store, saloon, boarding house, and ten ton smelter. By 1880, however, only six people remained. In 1905, the Illinois Mine was reopened and another smelter built. The town of Lodi was evidently relocated some two miles east, to Lodi Tank. A few buildings still stood on the site in 1966 (Pendleton, McLane, and Thomas 1982:Table 4).

Downieville was another early population center in the area. Located about three miles north-northeast of Gabbs, it was established sometime around 1877, following the discovery of silver-lead ore. A lead smelter processed some ore, but most was shipped out of the area on the Carson and Colorado Railroad, by way of Luning. How long Downieville was a functioning community is uncertain, but it was deserted by 1901.

In 1927 a rich deposit of brucite was discovered on the west face of the Paradise Range; development flourished during World War II. Associated camps included Sierra Magnesite, Brucite, and Tungsten. Increased war years production saw the establishment of the larger community of Gabbs.

Mineral production figures for the period between 1859 and 1940 in Nevada are provided by Couch and Carpenter (1943:113). Figures for the Lodi District (which includes the earlier Mammoth District and the Ellsworth area) include the period between 1866-1940. Peak periods of production were from 1877 to 1883 and from 1937 to 1940. The period between 1883 and 1937 saw little mining activity; only a minor surge in production occurred in 1889 and 1890, and tailings at Ellsworth were reworked in 1916 (Lincoln 1982:174). These production peaks match the early and late periods of settlement in the area.

Chapter 4

RESEARCH DESIGN

In order to assess fully the archaeological potential of the project area, and to assist in the determination of National Register significance, a research design was developed to guide the field work and the subsequent report preparation. A number of research questions derived from our review of regional history and prehistory are presented in this design; each is discussed below.

PREHISTORIC RESEARCH CONCERNS

Cultural Chronology

The chronology of the Great Basin can be divided into time periods and associated adaptive strategies that span a period of 10,000 years. Sites can be assigned to specific chronological periods when time sensitive artifacts (projectile points) are found within their assemblages, or when more absolute dates can be obtained through obsidian hydration measurements or C-14 dating. Research in the Great Basin has shown that subsistence and settlement patterns have changed over time: each temporal period bears its own archaeological signature (Figure 3). Therefore, a number of questions can be generated concerning the periods during which the project area was utilized.

The paleo-Indian period is, for the most part, characterized by a lacustrine habitation. Sites are usually associated with pluvial lakes that were present during the late Pleistocene and early Holocene climatic sequences. As research continues, however, it appears that the period may not be represented solely by lake shore environments; upland settings may have been utilized as well; therefore, we thought it possible that paleo-Indian foragers may have utilized the project area.

During Archaic times, utilization of upland environments is most likely. Thomas (1982) suggests that aboriginal occupation was most intensive at this time, and, in the Reese River Valley, occupation within the pinyon-juniper zone intensifies by 4000 B.P. (Thomas and Bettinger 1976). Within the project area, procurement of game would be the most likely activity during Archaic times.

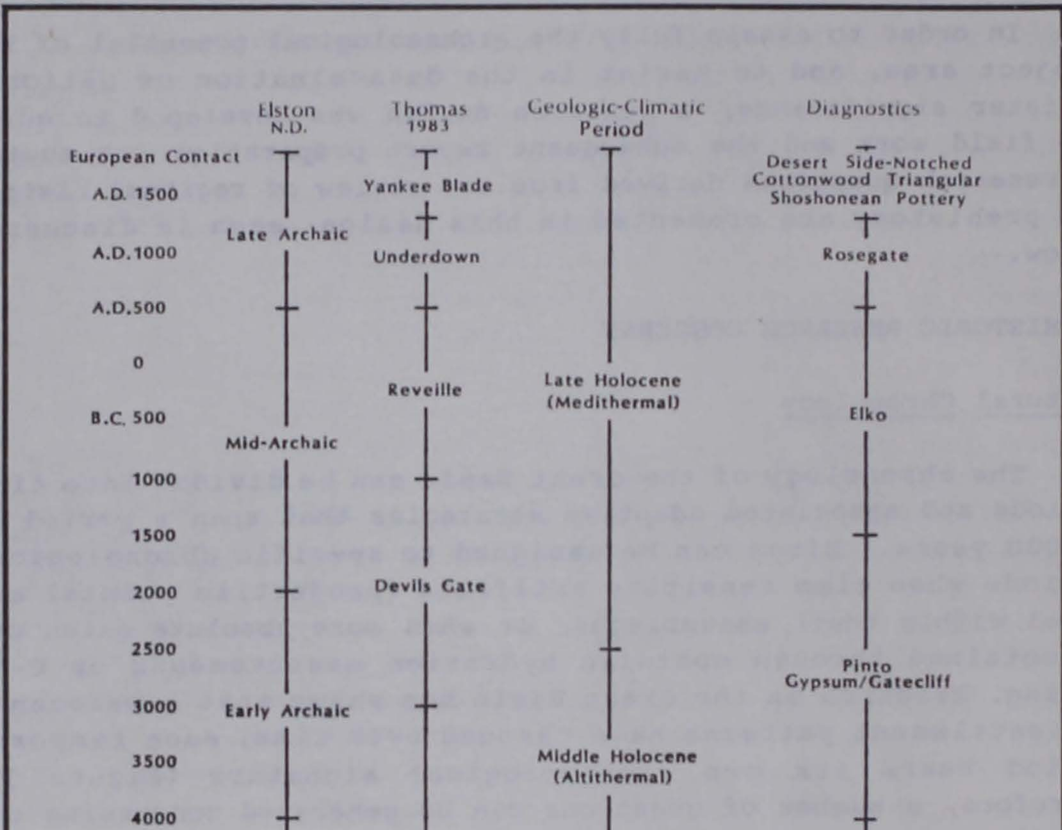

Figure 3. Cultural Chronology for the Central Great Basin

Bettinger (1976) suggests that pinenut harvesting activity began around A.D. 500, in the latter part of the Archaic period. Since game and pinyon resources both occur in the project vicinity, we thought sites in the area might yield information relevant to this question. In particular, what subsistence and settlement strategy is necessary in order to conduct the intensive pinyon procurement that appears to have taken place during late Archaic times? If assemblages from a number of sites appear to be Early to Middle Archaic in age, can we see any evidence of functional activities other than hunting? Conversely, are sites from the Late Archaic comprised solely of assemblages related to the collection, processing, and storage of pinenuts? Finally, can we identify any shifts within the subsistence and settlement pattern that occur over time?

Subsistence and Settlement

A major research objective is the investigation of subsistence and settlement patterns occurring within the project area. Specific settlement patterns and functional site types are characteristic of each of the strategies discussed below.

Binford (1980) discusses subsistence and settlement strategies used by hunters and gatherers as a continuum ranging from foraging to collection. Each strategy requires varying degrees of mobility and logistical organization. Thomas and Bettinger (1976) and Thomas (1983) describe the subsistence and settlement strategy within the Reese River Valley as a fission/fusion system that lies somewhere in the middle of Binford's continuum.

Forager Strategy

Foragers are mobile groups who range out daily from a residential base to gather food on an encounter basis (Binford 1980). Size and location of the residential base will vary depending upon group size and seasonal availability, abundance, and diversity of the exploited resource(s). Foragers gather resources from within a specific foraging radius, moving within a specific, seasonally adjusted range. The availability of critical resources such as water, may restrict the movement of foragers, creating extreme redundancy in the use of specific areas over time. Generally, foragers bring people to the

resources, and their settlement patterns reflect high residential mobility.

Two functional site types are associated with a foraging subsistence strategy, the residential base and the location (Binford 1980). The residential base is the hub of all foraging activity; processing, manufacture, and maintenance occur here, and collecting activities radiate from this point (Binford 1980:9). Due to the exhaustability of resources, forager residential bases are short-termed and ephemeral in nature. If used infrequently, they will exhibit low archaeological visibility. Extended use, generally a result of cyclical re-use of a site located near some critical resource, will increase their archaeological visibility. The artifact assemblage from a residential base should represent a wide range of activities. Structural remains may be present along with evidence of food processing. Since most tool manufacture and maintenance took place at the residential base, lithic waste should reflect the entire reduction sequence. A high degree of intrasite variability, then, should exist at a forager's residential base and its resource specific nature should result in high intersite variability since it is used to exploit different resources. Intersite variability will decrease in large areas where resource redundancy is apparent.

Locations are the places where resource extraction tasks are carried out. Since low-bulk resources are often widely scattered, locations will often be distributed over a wide area. A location may be small, and physical remains may be absent. Animal procurement locations are most visible in terms of the archaeological record, since their loci are frequently predicated by environmental factors (winter/summer range, topography, elevation) and often contain some remnant of the extractive task (bone, lost or broken tools). On the other hand, sites used during procurement of plant resources are less visible. Areas where such activities may take place can be identified environmentally, but the tools used for extraction are perishable and rarely encountered (Thomas and Bettinger 1976).

As a rule, then, the visibility of locations will be low, except for those positioned in areas where resource redundancy is high. Frequent use of a resource patch over a long period of time may result in a location with an artifact accumulation. On first inspection, these areas may appear to be functionally

different from locations. However, they would lack the internal structure and deposition that would be more characteristic of a long-term accretional site formation process. The artifact assemblage at a location should be one-dimensional and limited to lost or broken, task specific artifacts. Limited use, and the general low-visibility of locations, pose a substantial problem to the field archaeologist in their identification. Yellen (1977) indicates that as site size diminishes, so does the possibility of discovery. Assemblage variability, both intrasite and intersite, at locations should be low. Intersite variability may increase, however, if a wider range of resources is present within the exploited area.

Collector Strategy

Unlike foragers who move to the resource(s), collectors move the resource to the group. They accomplish this by storing food and by organizing task groups to logistically exploit resources. These task groups, generally consisting of a small party of knowledgeable individuals, leave the residential base and travel to specifically selected areas where the target resource is known to occur. Smaller, short-term camps are established in these areas and procurement operations are conducted from them. The gathered resources then may be transported back to the residential base for consumption by the larger population, or processed and stored for future use. This strategy generally requires the procurement of high-bulk resources, some of which may be initially processed in the field for ease of transportation or storage.

Residential mobility is low for collectors, but their logistics orientation requires a number of functionally specific site types. Collectors, like foragers, occupy a residential base and procure resources from locations. Locations fulfill the same function in both strategies, and their nature and composition are similar. The collector's residential base, however, is semi-permanent and should contain an assemblage that depicts a complete range of seasonal activities. Residential base camps should be positioned in areas where critical supplies (fuel, water) are readily available yet not too far from a number of exploitable resources. Since a wide range of activities is present at a collector's residential base, intrasite variability should be high. Intersite variability, however, may be low, since all base camps serve a similar function. Re-use of the

base camp as a field camp, station, or location may also occur in a logistically organized system.

In addition to the residential base and locations, collectors make use of three other functional site types: the field camp, the station, and the cache (Binford 1980). The field camp functions as a temporary operating center away from the residential base. It may be differentiated from the base camp by the nature of the target resource. At a field camp, the artifact assemblage should be highly specialized and relate to a task specific activity. Some maintenance and processing activities may occur and temporary structures may be evident. Artifacts present will be highly curated and there should be an abundance of broken and discarded tools. Since tool manufacture rarely occurs at field camps, the lithic assemblage should contain more maintenance debris than that of the manufacturing sequence. Field camps can also be distinguished from residential bases in terms of their length of occupancy. Variability within the assemblage of a field camp, due to its task specific nature, may be low; and when compared to similar site types in different resource zones, intersite variability increases. Within a redundant resource area, however, intersite variability between field camps should decrease, especially if the sites are seasonally re-used.

Stations are sites where information concerning target resources is gathered or exchanged. For example, hunting blinds and ambush locations may serve as stations where game procurement is planned. Since specific task groups are engaged in resource procurement, information on resource movement and availability must be gathered and exchanged.

The collector subsistence strategy generally consists of a small group supplying resources to a larger group. As a result, the transportation of high bulk resources is necessary. One way of coping with this situation is through storage. Binford (1980) defines a cache as a storage facility specifically constructed to deal with large quantities of bulk items.

It is important to note that collectors, like foragers, seasonally adjust their subsistence and settlement strategy. Settlements shift to take advantage of resources as they come in season. Foraging is a simple strategy that makes maximum use of such residential mobility. As the group becomes more

logistically organized, the strategy becomes increasingly more complex, but it will retain many properties of the simpler system. As complexity increases, so does variability within the archaeological record. Intersite variability then, can be seen as "a function of increases in the logistical components of the subsistence-settlement system" (Binford 1980). Consequently, the archaeological signature of collectors, who are logistically organized, should exhibit a higher degree of intersite variability within their entire system.

Fission/Fusion Strategy

Thomas and Bettinger (1976) and Thomas (1983) describe a subsistence and settlement strategy for the Reese River Valley that is characterized by seasonal fission and fusion. This strategy relies on the use of both a foraging and a collecting strategy as discussed above. The Reese River Valley data show that during fall and winter months, groups followed a collector subsistence and settlement strategy. Groups existed on stored pinyon nuts, seeds, and dried meat, and occasionally conducted hunting trips. During this time, residential mobility decreased. Residential bases were established at the pinyon-juniper ecotone near the valley floor. Resource procurement parties ranged from this base in a logistical manner. During late spring and summer, the winter base camps disbanded and smaller, extended family groups foraged for seasonal resources on the valley floor. Residential mobility increased during this time.

In defining the subsistence and settlement pattern in the Reese River Valley, Thomas and Bettinger (1976) sampled a wide range of environments. They found that both foraging and collecting strategies were used to exploit resources and that these strategies were seasonally and environmentally adjusted.

The environment within our project area is considerably more restricted than that examined by Thomas and Bettinger. It may have been exploited as part of a fission/fusion strategy, but the nature of the strategy and our restricted environment suggest that only a portion of the entire system will be identified.

Implications Within Project Area

Archaeologically observed site distribution is the result of long-term group positioning and repositioning within space (Kelly

1980b; Binford 1982; Thomas 1983). Binford (1982) has developed a model of site type positioning derived largely from cultural geography. Basically, the model consists of a series of concentric circles. The "campground radius" is the innermost circle containing the immediate workings of the residential base. Essential resources such as wood and water are often overexploited within the radius, while other resources may be only lightly exploited. The campground range is generally within a 1 km. radius of its center.

The "foraging radius" lies outside the campground range and includes the area that can be systematically exploited from the residential base without involving an overnight stay. The foraging radius is generally no more than 10 km. from base; foraging from beyond that distance is usually accomplished by establishing another residential base (by foragers), or field camp (by collectors).

The "logistical radius" is that zone beyond the foraging radius where use requires at least an overnight trip. Use of this area by task groups involves the establishment of temporary field camps. This zone is variable in size, increasing in proportion to the degree of logistical organization of the group. Thomas (1983), after Steward (1938), indicates that the logistical range for the Owens Valley Paiute is approximately 24 km.

Finally, all these zones are encompassed by the broader "extended range". This is the entire area effectively monitored by the group with regard to resource distribution and availability. The extended range includes those areas which may be visited by a group upon the failure of a necessary resource.

Binford (1982) describes three patterns of mobility that relate to the economic use of an environment. The "half-radius continuous pattern" of movement is associated with highly mobile foraging groups. This system consists of exploitation within one-half the foraging zone, then rapid movement of the residential base to the perimeter of the previously covered area. The logistic radius of the residential camp is never developed.

Highly mobile groups may also employ the "complete-radius leapfrog" pattern. Here, groups exploit the entire area of the foraging radius, then move the residential base to another area

within the logistical zone. This pattern is most often associated with groups employing an encounter strategy of resource procurement. It is most effective in an area of high resource redundancy.

In areas where critical resources are relatively rare, a pattern of "point-to-point" mobility is common. This pattern involves the movement of the residential base to an area within an optimal distance of critical resources. Foraging and logistic radii are established around that base. When a move is required, the residential base is repositioned in an area prejudged to contain the necessary congruence of food, water, and fuels. Foraging and logistic zones are then redefined and that area exploited.

Thomas (1983) suggests that both the "half-radius" and "point-to-point" patterns of mobility are employed by the Reese River Shoshone. Populations are tethered to base camps in a point-to-point pattern during winter months. They exploit resources from within the camp's foraging and logistic radius. During summer, a series of half-radius moves are made in order to exploit, on a large scale, an area of scattered resources located on the valley floor.

From an archaeological perspective, the movement of residential base camps creates a number of problems. Generally, special activity areas occur within the campground radius of the residential base; locations within the foraging radius and field camps within the logistical radius. As residential bases are moved, however, their supporting zones may overlap with those of the previous base camp. Areas previously within a base camp's campground radius are now within its logistical range, and that base camp may be used as a field camp.

The visibility of artifact patterning will suffer as a result of long-term mobility patterns in an area. As base camps are reoccupied or reused, their artifact assemblages will begin to reflect a more complex range of activities. Other site types, particularly those associated with logistically organized groups, will also become more complex.

The scope of the CAI project is somewhat limited in terms of area; thus subsistence and settlement patterns may be difficult to assess, especially if logistically complex. Since the project

area covers a small portion of a restricted ecozone, only part of the overall subsistence and settlement pattern can be identified. Presumably, however, the function of the sites encountered will show an affinity towards the site types predicted for each procurement strategy.

If the forager strategy is operative, we expect the following:

1. The predominate site type within the project area will be locations.
2. Intrasite variability for locations will be low; intersite variability will be high only if a number of different resource patches are exploited.
3. A residential base may occur within the area.
4. The artifact assemblage of residential bases should exhibit a high degree of intrasite variability and low intersite variability since the project area lies within a single environment.
5. Field camps, stations, and caches will not be present.

If collectors made use of the area, we expect:

1. Locations with assemblage variability similar to that of foragers will be present within the project area.
2. Field camps will be present.
3. The artifact assemblage at field camps will be characterized by low intrasite and intersite variability.
4. Stations and caches may be present.
5. A residential base, if present, will be characterized by extreme intrasite variability.

In the model Thomas (1983) presents for the fission/fusion strategy utilized by the Reese River Shoshone, fusion occurs during the winter, when a logistic procurement strategy within the pinyon zone is necessary. The project area, too, is characterized by a pinyon environment. If a strategy similar to that of the Reese River Valley was operative within the project area, we expect that the subsistence and settlement pattern would most resemble that of collectors.

HISTORIC RESEARCH CONCERNS

Theoretical models applicable to the historic sites in the project area are limited. Perhaps the most relevant is one referred to as the Frontier Model. As described by Lewis (1976), a frontier is a zone which serves to separate the settled and unsettled portions of any political entity. The Frontier Model deals with changes that take place among cultures involved in the colonization and adaptation to frontier areas (Lewis 1976:13). The colonists carry with them a simplification of the larger cultural system.

Kirsch (1980) provides a discussion of behavioral adaptation based on evolutionary theory that is compatible with the Frontier Model. He proposes that adaptive changes take place through a series of three stages. During the initial Colonizing Period, immigrants begin developing an area with a technology and behavioral repertoire adapted to their homeland (Elston, Hardesty and Zeier 1982). Sites representative of this period should exhibit limited variability. As difficulties are encountered, the Experimentation Period begins. Technological and behavioral innovations bring about a higher degree of variability. During the Readjustment Period, innovations of little potential are dropped and a gradual adjustment of the technological and behavioral repertoire takes place. Over time, variability decreases.

The difficulty with both the Frontier Model and the one presented by Kirsch is that they require a larger frame of reference than is provided by the project area. As discussed by Lewis (1976), the Frontier Model is best applied in the study of communities that have a temporal dimension spanning several developmental stages; nearby Ellsworth or Ione are examples. While historic sites in the project area may relate to these foci of frontier activities, they were a distant and very limited part of it. Such sites must be viewed as representative of a population of outlier camps which reflect a particular facet of the local frontier experience (Elston, Hardesty and Zeier 1982:18). In other words, we may not be able to say much about the big picture, but we can investigate one of the small ones.

Hardesty and Hattori (1982:29-30) also provide a discussion of historic colonization patterns. Based on use of optimal foraging theory, we feel their discussion is appropriate to our

understanding of small camps such as those in the project area. Central to their discussion is that miners move "... from one ore or other resource patch to another..." in a predictable pattern. They remain in a patch only as long as it provides a yield higher than that obtainable elsewhere in the frontier, given a particular technological level and market. If the market or technology changes, previously abandoned patches may be reoccupied. Use of areas surrounding a frontier settlement will be opportunistic in nature, with little necessary emphasis on formal development or temporal continuity. These areas will exhibit the most attenuated version of the parent culture observed since they are the frontier of the frontier.

Based on limited evidence of community development discussed in Chapter 3, we anticipate that historic mining related sites in the project area will fall into one of three periods (Table 2).

Table 2. Periods of Mining Activity in the Project Vicinity.

Mining Period	Beginning and End Dates
EARLY PERIOD	
Mammoth	1863 - 1880
Lodi	1875 - 1880
Downieville	1877 - 1880s
MIDDLE PERIOD	
Ellsworth Tailings	1916
Lodi Tank	1905 - ?
LATE PERIOD	
Gabbs	1927 - present

Several research questions can be posed based on these models and the character of the historic resources known to be in the project area:

1. Which period of "colonization" are the sites associated with? Are they associated with a single frontier period of the area, say the 1860-1875 period when Ellsworth was booming? Or do they reflect several different periods of exploration?

2. Do the sites exhibit a degree of similarity that would suggest a consistent pattern of use or exploration? In other words, were the inhabitants exploiting one type of resource patch, or several?
3. If several periods of use are reflected in the site data, does the pattern of resource patch exploitation change over time?
4. What types of activities are reflected at the sites? Is there any evidence present to indicate shifts in the technology?

Chapter 5

RESEARCH METHODS

FIELD METHODS

Survey Methods

Prior to survey, CAI personnel mapped and gridded the area they had scheduled for intensive testing (Figure 4). We established a baseline near the southern edge of the project area and staked a series of north/south transects staked at 600 foot intervals along that line. Each transect was oriented along an axis 22^{o} east of true north and grid coordinates were staked at 200 foot intervals along each transect. Stakes identified the distance along the base line (for example, 6+00West) and the distance north or south from the base line (for example, 2+00North).

Our survey included the grid area and two smaller areas west of the grid. The areas west of the grid had been eliminated from further consideration by CAI personnel. The former was surveyed systematically, the latter were surveyed intuitively. An area along the eastern grid margin was excluded from survey due to steep slope (30 to 45%). The controlled reconnaissance was performed by a group of four surveyors evenly spaced at 30 meter intervals. The previously staked grid transects were used to orient the survey crew; crew spacing and location was monitored by the crew supervisor. The intuitive portion of the survey consisted of two crew members walking parallel transects along ridges and drainage channels in those areas lying outside the grid.

All sites were sequentially numbered by transect in the field and, later, assigned permanent Forest Service site numbers. All isolated artifacts in a Cadastral section were assigned a single Forest Service site number, a composite description of the area given, and a listing of isolated artifacts from that section attached. Site recording and collection policies had been previously arranged between IMR and the Forest Service. Sites located during the survey were recorded on Intermountain Antiquities Computer System* (IMACS) site forms. Collection was

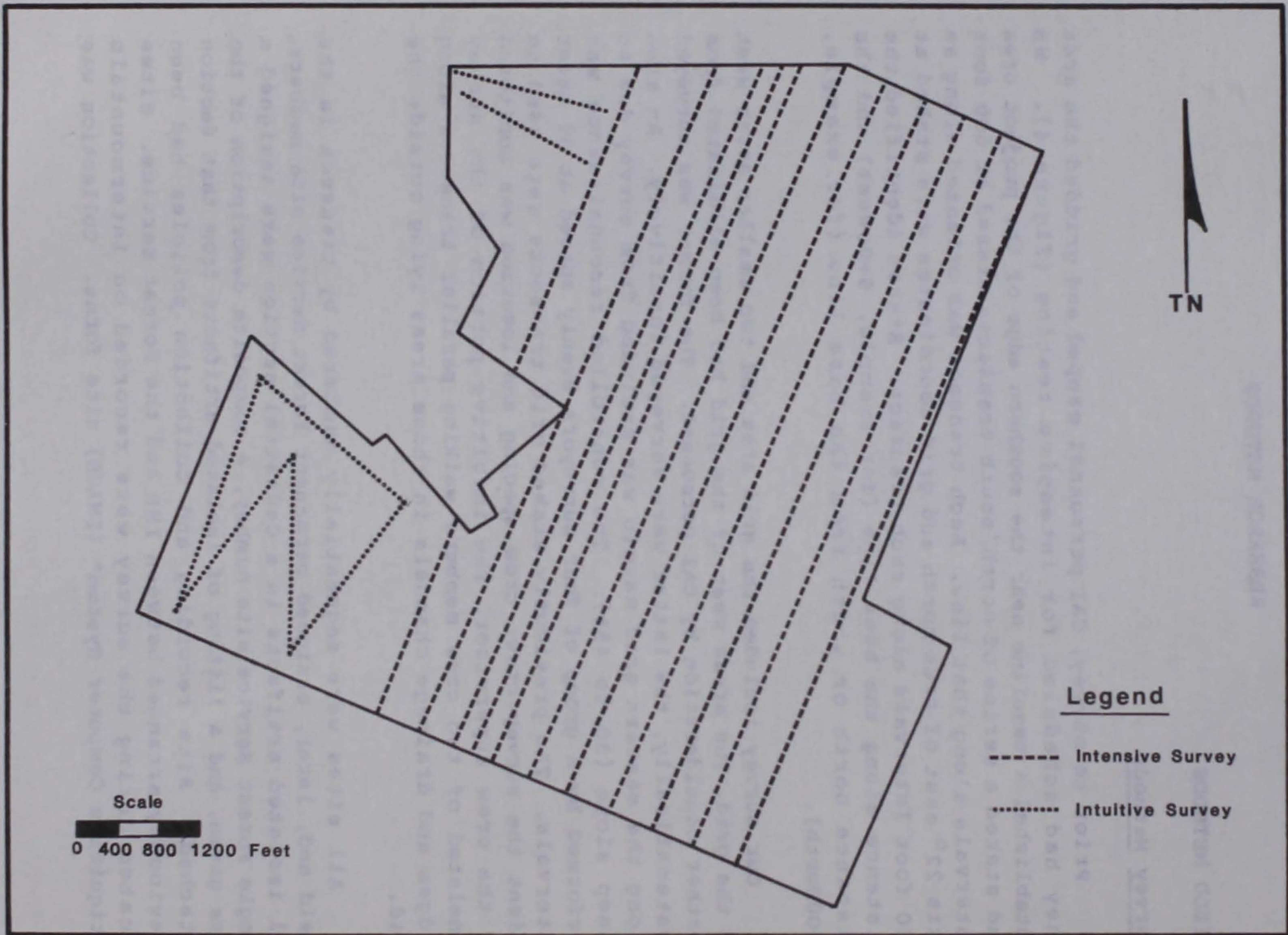

Figure 4. Survey Coverage (CAI Grid)

limited to temporally diagnostic isolated artifacts and all artifacts from small sites containing such items.

When a site was identified during the survey, field personnel walked a series of close interval transects oriented towards cardinal directions in order to assess the horizontal boundaries of the site. When extensive deposits were encountered, final recording of the site was delayed until transects to either side had been surveyed. This minimized the chances of recording the same site more than once. After the extent of a large site was determined, a datum was established and the site was mapped. The datum consisted of a 1" by 2" wooden stake driven at least 12" into the ground. A stamped, numbered aluminum disk was used to mark the datum and identify the site.

Sequential numbers stamped on the disks are different from the temporary site numbers. They are referenced parenthetically with the temporary numbers on the site forms. Datums were not established for small, nondescript sites.

Testing Methods

Prehistoric Sites

Field methods for the testing of selected prehistoric sites consisted of four steps: additional site reconnaissance, controlled surface collection, subsurface test excavation, and site mapping.

At each evaluated site, crew members spread out at ten meter intervals and systematically walked the entire site. Artifact concentrations and features were pin flagged and identified for mapping and surface collection. Transects spaced at five meter intervals were then established perpendicular to CAI grid transects. The axis of each transect was staked with lath at 50 meter intervals and a crew of three was responsible for data recovery within 5 by 5 meter units along each transect.

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*Intermountain Antiquities Computer System is a cultural resources data management system maintained by the Archaeological Center, Department of Anthropology, University of Utah.

Much of the debitage from stone tool manufacture is redundant (Elston et al. 1977, Elston and Zeier 1983, and Drews and Elston 1983). Therefore, debitage within each 5 by 5 meter unit was counted and identified by reduction stage and material type in the field. Debitage was collected only from units where test excavation was scheduled. In addition, ten secondary obsidian flakes were collected from each site for later use in source affinity analyses.

Two, 1 by 1 meter excavation units were placed in site TY-1103 and one each at sites TY1075, TY1077, TY1086, TY1087, TY1088, and TY1103. Test units were placed where artifact density was highest at each site. Excavation was conducted in arbitrary 10 cm levels and all soil was sifted through 1/8 inch mesh hardware cloth. Recovered artifacts were provenienced by unit and level. Soils, features, and artifacts were recorded on standard excavation unit forms. Excavation was continued in each test unit until bedrock or two sterile levels were encountered.

When all the previous tasks were completed, pin flagged artifacts, concentrations, and features were mapped using a transit and stadia rod. In addition, contours along sample transects were recorded. Surface artifacts (tools only) were assigned field numbers and collected at this time. Groundstone was described and measured in the field.

Historic Sites

Documentation of historic sites was somewhat different from prehistoric sites. Field methods used are the same as those outlined in Turner (1982). They include an intensive site reconnaissance to locate concentrations with datable or characteristic components, assigning of reference numbers to concentrations, in-field artifact analysis, and in-field artifact illustration. Detailed maps were compiled for each site. These methods are designed to acquire maximum site information with minimum artifact collection. Only complete artifacts representative of a type were collected from historic deposits. Site documentation was accomplished by an interpretive specialist well trained in the identification of artifacts from the historic period.

LABORATORY METHODS

All artifacts collected were transported to the IMR laboratory for cataloging and analysis. Catalog numbers consist of the Forest Service site number followed by a sequentially assigned numerical identifier. Artifacts collected during the survey have the complete Forest Service site number and a specimen number written on them (e.g., TD3-9-83-347-TY-1089-1-2). Catalog numbers for artifacts collected during testing are composed of the "TY" Forest Service number and the specimen number (e.g., TY-1103-1-2).

Projectile points were classified using a key developed by Thomas (1981). The key is illustrated in Figure 5 and Figure 6 lists the attributes used to define point types. In the absence of radiometric dating, projectile points are presently the best means of developing chronologic data for sites in the project area.

Other bifacially modified lithic artifacts were typed using a three-stage reduction sequence outlined in Drews and Elston (1983) (see also Muto 1970). It should be noted that these stages are arbitrary divisions of a continuum and that the separation between the stages is not always clear. During Stage I reduction, artifact margins are reduced, a regular outline is established, and platforms are prepared for further reduction. Flake scars usually do not cross the artifact midline, and cortex may be present. Stage II reduction is recognized by further thinning of the blank. Flake scars usually cross the artifact midline and may be confined to the dorsal surface, especially on smaller flakes. During this stage, the cross-section is regularized, the outline becomes more symmetrical, and small flakes are removed from the margins of the ventral surface in order to prepare platforms for further dorsal thinning. During Stage III reduction, ridges and arrises from previous flake scars are removed. The terminal form of the artifact becomes apparent. The biface assumes a lanceolate or triangular outline and becomes convex to plano-convex in cross-section. On smaller pieces, complete reduction of the ventral surface may not be necessary to achieve the desired width-to-thickness ratio.

We made an effort to distinguish between flake tools and bifaces that had been utilized, but the issue becomes cloudy when considering a flake which has been bifacially modified only to

A KEY TO MONITOR VALLEY PROJECTILE POINTS

1.	Point is unshouldered (DSA and PSA not applicable to both sides)	2
1*a*.	Point is shouldered	5
2.	Point is small, thin, and triangular (weight $\leq$1.5 g., length $<$30 mm., thickness $<$4.0 mm., and basal width/maximum width ratio $>$.90	**Cottonwood Triangular**
2*a*.	Other	3
3.	Point is small, thin, and basally rounded (weight $\leq$1.5 g., length $<$30 mm., thickness $<$4.0 mm., and maximum width position $>$15%)	**Cottonwood Leaf-shaped**
3*a*.	Other	4
4.	Point is lanceolate with concave base (basal width/maximum width ratio $\leq$.90, basal indention ratio $<$.98)	**Humboldt series**
4*a*.	Other	OUT OF KEY
5.	Point is side-notched (if weight $<$1.5 g., then PSA $>$130°; if weight $\geq$1.5 g., then PSA $>$150°)	6
5*a*.	Point is stemmed	7
6.	Point is small and triangular (weight $\leq$1.5 g., basal width/maximum width ratio $>$.90	**Desert Side-notched**
6*a*.	Point is large (weight $\geq$1.5 g.)	**Large Side-notched**
7.	Point is small and corner-notched (basal width $\leq$10.0 mm., 90° $\leq$PSA $\leq$130°; neck width $\leq$ basal width +.5 mm.)	**Rosegate series**
7*a*.	Other	8
8.	Point is corner-notched with convex, straight, or slightly concave base (basal width $>$10.0 mm., 110° $\leq$PSA $\leq$150°, basal indention ratio $>$.93)	**Elko Corner-notched**
8*a*.	Other	9
9.	Point is corner-notched with concave base (basal width $>$10.0 mm., 110° $\leq$ PSA $\leq$150°, basal indention ratio $\leq$.93)	**Elko Eared**
9*a*.	Other	10
10.	Point has contracting stem and concave base (weight $>$1.0 g., PSA $\leq$100° or notch opening index $\geq$60°, basal indention ratio $\leq$.97)	**Gatecliff Split Stem**
10*a*.	Other	11
11.	Point has contracting stem and straight, pointed or convex base (weight $>$1.0 g., PSA $\leq$100° or notch opening index $\geq$60°, basal indention ratio $>$.97)	**Gatecliff Contracting Stem**
11*a*.	Other	OUT OF KEY

Figure 5. Projectile Point Key (after Thomas 1981)

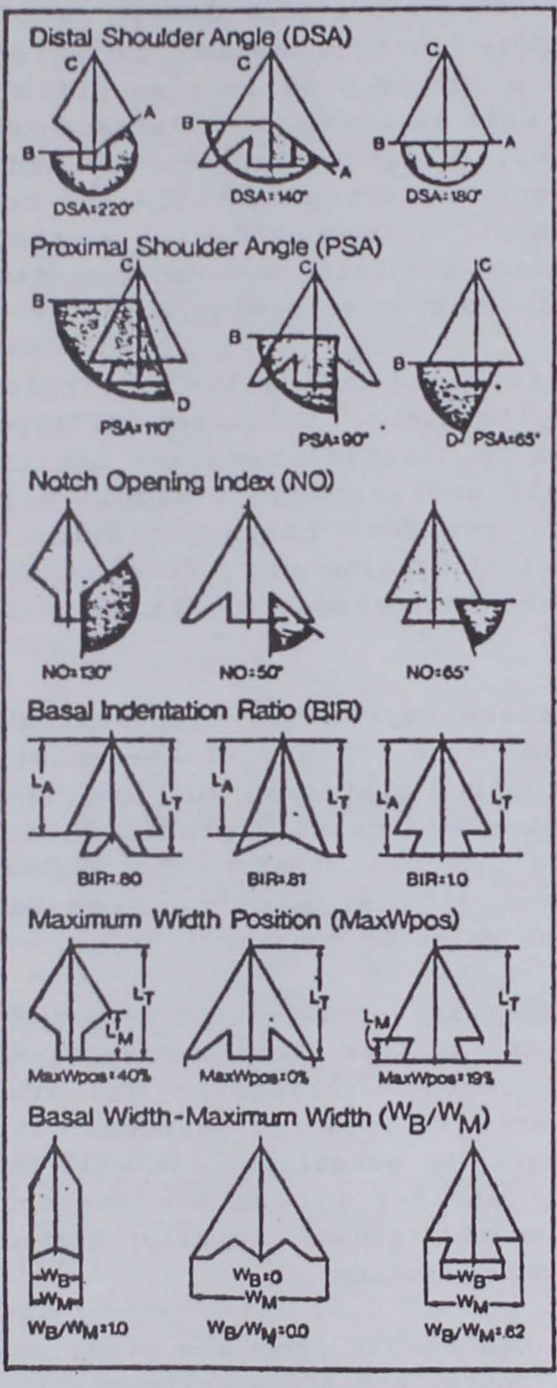

Figure 6. Standardized Attributes for Great Basin Projectile Points (after Thomas 1970: Figs. 2, 3)

produce a cutting edge. For purposes of discussion, utilized bifaces have extensive modification on both the ventral and dorsal surfaces, and exhibit edge damage on at least one lateral edge. Flake tools include artifacts which have had local modification in order to produce a specific result (such as a cutting edge) as well as unmodified flakes which show utilization on lateral edges. Flake tools were divided into two assumed functional categories; scraping tools and cutting tools. The former exhibit modification producing a steep edge; the latter exhibit modification producing a crush-resistant edge, or damage characteristic of cutting or sawing.

Debitage attributes indicative of lithic reduction stages were recorded in the field. Collected debitage was cataloged by lot: once sorted by material type and debitage class, it was counted, weighed, and assigned a single catalog number. By noting the size, platform characteristics, and presence or absence of thermal alteration and cortex, it is possible to place a flake in a three-stage trajectory similar to that defined for biface reduction.

A primary flake represents the earliest stage of lithic reduction. These large, chunky flakes usually have cortex; a large, flat unprepared platform; and few, if any, dorsal flake scars. The flakes are usually produced with a hard hammer, resulting in some platform shatter. The ventral surface usually contains a relatively large percussion bulb with ripples radiating from the point of contact.

Secondary flakes are produced during intermediate stages of reduction. They are smaller than primary flakes and may or may not have cortex present. Platforms may exhibit evidence of grinding or battering, producing surfaces suitable for further percussion flaking. The dorsal surface will have numerous flake scars evident of earlier production stages. In plan view, secondary flakes usually expand distally; they are usually curved in longitudinal cross section.

Tertiary flakes result from the final stage of reduction. These rarely have cortex and are usually small, thin, flat flakes produced by direct pressure or a soft hammer. The dorsal surface has many scars from previous reduction and the ventral surface has a small percussion bulb. The platform is small and is usually centered on the arris which is being removed.

Biface thinning flakes are more a function of the technology being used during tool manufacture than the stage during which the flake is removed. It is conceivable to have biface thinning flakes produced as primary, secondary, or tertiary flakes. These flakes possess all the attributes indicative of the reduction stage during which they were removed. Other indicators of biface thinning flakes include longitudinal curvature and outre passe termination.

This report, all project documentation, and the artifact collection will be submitted for curation to the Museum of Anthropology, University of Nevada, Reno.

ANALYTIC METHODS

Analysis of Survey Results

Upon completion of the survey, site data were examined in order to identify functional site types and to identify sites that required further evaluation.

Site Typology

Holmer and Janetski (1980; also see Binford 1980) have developed a site typology based on the degree of observed intrasite variability. Their proposed site type key was designed to provide a typology for sites identified during survey. Data obtained during this stage of archaeological investigation is often general and usually limited to the description of features and major trends observed within the artifact assemblage. Rarely during initial site reconnaissance is every artifact at the site observed.

It was our intention to use the Holmer and Janetski key in our evaluation of the sites under investigation. However, the key became increasingly inaccurate as the level of investigatory effort at a site intensified (there was a strong tendency to overrate sites, making base camps of field camps and field camps of locations). For instance, when we returned to the field to evaluate seven prehistoric sites, artifact inventories were increased by as much as 70% and, at five sites, an additional functional tool class was identified.

Rather than modify the Holmer and Janetski key, or develop one more applicable to our immediate concerns, we decided to make site type designations on an intuitive basis. Generally, the sites identified by the Holmer and Janetski key as locations appeared to be classified correctly. The field camp and residential base types were, however, suspect.

Our intuitive reclassification of these relied on functional classification of tools present, assemblage composition, artifact density, and disposal patterns. Thomas (1983:72-73) provides a list of functional tool categories that allows assemblage level site comparisons. A modified, and somewhat abbreviated, version of Thomas's functional tool types are presented below.

1. Food procurement: implements designed specifically for killing fauna or harvesting plant resources. These include projectile points, fishing equipment, traps, snares, pinyon hooks, seed beaters, winnowing trays, and burden baskets.
2. Domestic equipment: items designed for the storing, consumption, or processing of food and those associated with maintenance of clothing and structures. These include milling equipment, storage containers, ceramics, items of clothing, customary ornaments, firemaking equipment and hearths.
3. Fabrication equipment: implements used during the manufacture, alteration, or assembly of other tools. This includes hammerstones, awls, drills, perforators, shaft straighteners and sewing implements.
4. General utility tools: a catch-all for multi-functional tools, this category consists of two types of tools; highly curated artifacts such as knives and scrapers (harvesting or food processing), and expedient tools such as utilized or modified flakes.

Yellen (1976) and O'Connell (1979) propose that disposal patterns may be different at short and long term occupation sites. Primary disposal occurs when refuse is left to accumulate in the area in which the actual manufacturing or processing occurs: when that space becomes exhausted (filled with garbage), the activity is simply moved. Primary disposal is typical of short term camps where space is unrestricted and the artifact production rate low. Primary disposal at a site can be distinguished by the presence of activity areas whose assemblage

represents the full range of activities necessary to complete a task. Utilized flakes, scrapers, a broken knife, and several resharpening flakes within a spatially distinct area would represent primary disposal, as would lithic concentrations containing the complete lithic reduction sequence.

Secondary disposal, commonly associated with longer term occupation, employs a different strategy: rather than move the activity, the refuse itself is relocated. Environmental positioning is a strong determinant for the location of the residential base. That, along with long-termed occupation, restricts the manner in which space can be utilized. Limited space necessitates a more organized approach to living. Therefore, when refuse from daily activities begins to clutter otherwise organized space, it must be removed. Secondary disposal is governed by the rate of output, the length of occupation, and the size of debris (O'Connell 1979:25-26). Binford (1978) suggests that the larger the item, the more likely it is to be moved.

These disposal patterns may be a key factor in determining whether a site is a residential base camp or a palimpsest of field camps. While the functional range of artifacts at a base camp may appear similar to that of a palimpsest of field camps, base camps should be distinguishable based on the presence of a secondary pattern of refuse disposal. The disposal of artifacts does little to the nature of the site assemblage as a whole, but it does significantly alter the composition of specific activity areas. While activity areas at field camps and palimpsests of field camps contain assemblages representing the complete range of a specific task, those at base camps may represent only the least obstructive refuse of that task. The remainder of that assemblage may, in fact, be located along peripheral areas of that activity locus.

Procedures Employed in Selecting Sites for Further Evaluation

We evaluated and rated sites identified during survey on the basis of artifact content (see Table 6). The wider the range of artifact classes represented at a site, the higher the overall rating score for that site. Debitage was assigned a score ranging from 0 to 5, depending on quantities present. Other tool classes were each given a single point. Ratings were then arrived at by totaling point scores for each site. All sites

with cumulative scores greater than 6 were then evaluated in terms of their integrity: if site integrity had been significantly degraded by surface disturbance, a point was deducted from the site's rating score. All sites with cumulative scores of 6 or higher were scheduled for further evaluation (including subsurface testing).

Analysis of Testing Results

Testing phase analytic methods revolve around two primary considerations: do the sites contain sufficient data of an appropriate nature to answer the stated research questions? Once this has been addressed, we ask, are any of the sites eligible to the National Register of Historic Places?

Chronology

Projectile points serve as the primary means of determining when sites in the project area were occupied. Assessment of inter- and intra-site patterns of projectile point style occurrence allows for an assessment of when the area was occupied and the relative intensity of occupation over time. The type of sites at which the various point styles occur will also provide information relevant to the analysis of subsistence and settlement strategies.

Subsistence and Settlement

Two subsistence and settlement strategies have been identified, either of which may have been operative within the project area. A decision as to which one the data support relies on an assessment of site types, their relative abundance, position in the landscape, and assemblage variability. The assignment of site types is discussed above. In addition, a series of propositions are discussed in the previous chapter that relate site type occurrence and abundance to each strategy. Assessment of these propositions should allow us to determine which strategy was operative and whether there were any shifts in settlement pattern over time.

National Register Evaluation Methods

After evaluation and testing, National Register eligibility assessments were conducted in a manner similar to that described

by Elston et al. (1983). These follow draft guidelines published by the National Park Service (1982). The NPS standards are designed primarily for use in the evaluation of standing historic structures and, in certain cases, are only marginally applicable to prehistoric archaeological resources. For a property to be eligible to the Register, it must possess integrity and satisfy at least one of four specific standards of significance. Integrity and significance are evaluated separately.

To possess integrity, a site must retain sufficient physical character to convey an association with past patterns, persons, designs, or technology (NPS 1982:44). Integrity consists of seven separate components (36 CFR part 60.6). Since integrity of material and workmanship are of little use in evaluating prehistoric sites, they are assessed collectively:

1) Integrity of location: the physical context of the resource.
2) Integrity of setting: the relationship between the resource and its physical environment.
3) Integrity of design: the arrangement of parts into a whole; the "principal aspects of design include organization of space, proportion, scale, technology and ornament" (NPS 1982:35).
4a) Integrity of material: at issue is authenticity, are the materials present those of which the resource was first constructed? Integrity of material may be viewed as the degree to which intrusive materials have been incorporated into or onto a site.
4b) Integrity of workmanship: the level of skill and craftsmanship evidenced in the resource.
5) Integrity of feeling: the quality a resource has in "evoking the aesthetic or historic sense of a past period of time" (NPS 1982:37).
6) Integrity of association: the strength of the link between the resource and the event(s) or people it is supposed to represent.

Elston et al. (1983) suggest that the four standards of significance incorporated into 36 CFR 60.6 are relatively vague. As a result, they developed six criteria to address the issue of significance:

1) Variety: the greater the variety of data present at a site, the greater the significance of the resource.

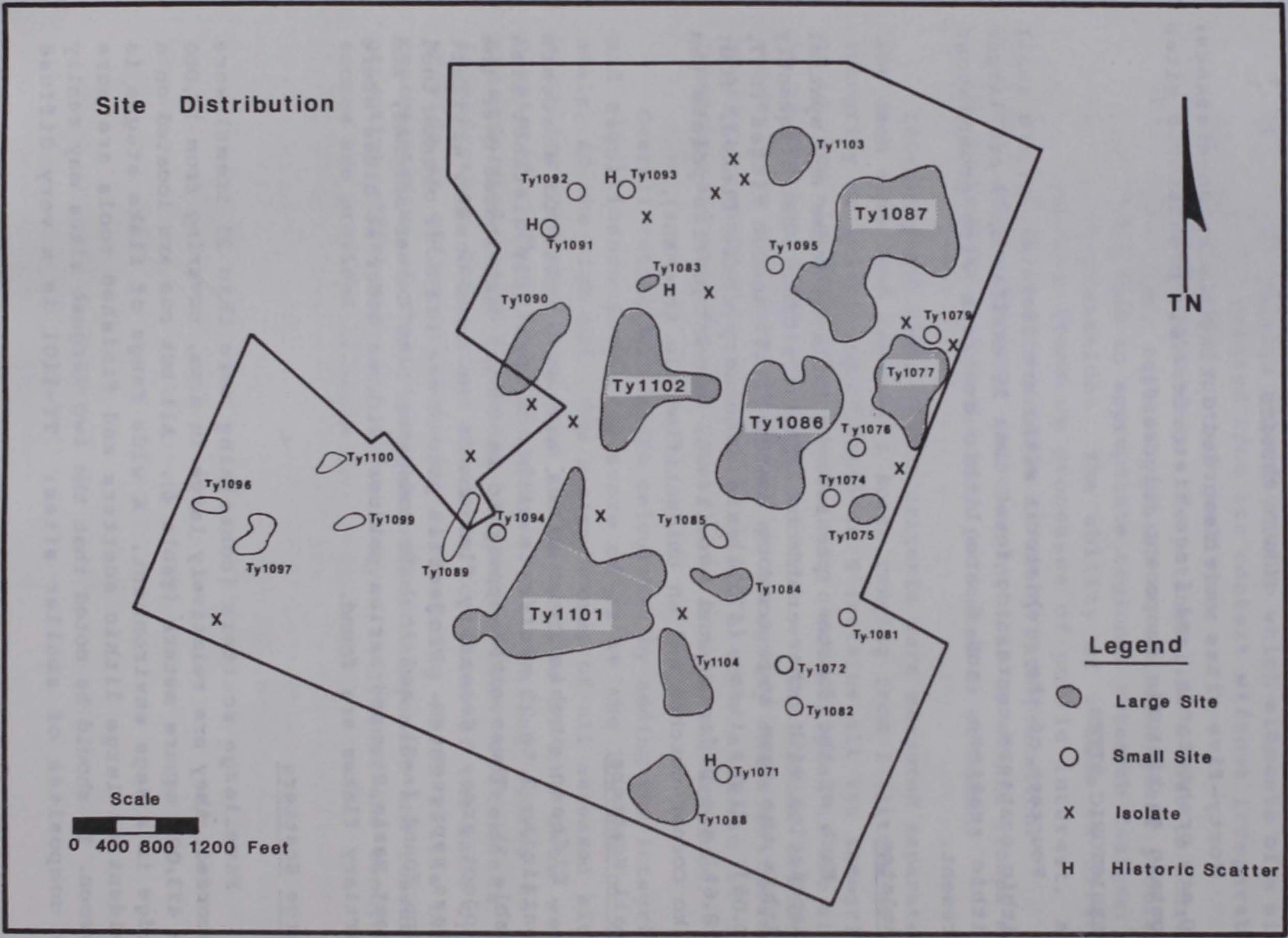

Figure 7. Sites Recorded During Survey

scatter of flakes covering a broad area; TY-1102 consists of several widely scattered, small concentrations.

Table 3. Small Lithic Scatter Composition.

Site Number	Geo- morph.	Vege- tation	Flake Stages	Proj. Point	Biface	Other Tool	Artifact Count
TY1074	Ridge	P/J	I	1			2-10
TY1076	Slope	P/J	II				2-10
TY1079	Ridge	P/J	I				2-10
TY1081	Ridge	P/J	II			1	2-10
TY1082	Slope	P/J	II				2-10
TY1092	Ridge	P/J	I	2			2-10
TY1094	Ridge	Sage	II				2-10
TY1095	Ridge	Sage	II	1	1		2-10
TY1072	Ridge	P/J	II,III	1			10-25
TY1085	Fan	P/J-Sage	II,III	2	2	1	10-25
TY1089	Ridge	Sage	II,III	1	1	1	10-25
TY1096	Ridge	Sage	II				10-25
TY1097	Ridge	P/J	I,II				10-25
TY1099	Ridge	Sage	II				10-25
TY1100	Ridge	Sage	II				10-25

Table 4. Large Lithic Scatter Composition.

Site Number	Geo- morph	Vege- tation	Flake Stages	Proj. Point	Biface	Flake Tool	Area sq. m
TY1084	Ridge	P/J	II,111	1			18,000
TY1101	Ridge	Sage	0,I,II,III	2	1		422,500
TY1102	Fan	Sage	II,III				78,538
TY1103	Ridge	Sage	0,I,II,III	9	10	14	20,000
TY1104	Ridge	Sage	I,II,III	2			14,400

0 = Shatter

Projectile point types include Humboldt, Gatecliff, and Elko Eared series, as well as three basally ground haft elements that could be assigned to the Great Basin Stemmed series.

Lithic Scatters With Groundstone

Six sites, each of which contains more than 25 items, have groundstone present (Table 5). The artifact assemblages at these sites are more varied than at the other sites types. Projectile points are the most common finished artifact class, but they are followed closely by bifaces, groundstone, and flake tools. Generally, sites with the greatest assemblage variability exhibit a similar range of variation in their debitage classes. In terms of environmental setting, all these sites are at least partially located on ridges, and 66.6% are located within the pinyon/juniper zone. Points from these sites include the Humboldt, Gatecliff, Elko, Large Side-notched, Rosegate, Cottonwood, and Desert Side-notched series.

HISTORIC SITES

Five historic sites were identified during survey: one of these, TY-1078, consisted of an isolated, turned-in-mold bottle neck; the remaining four were classified as historic dumps or historic dumps associated with structures. Historic debris was encountered at four prehistoric sites (TY-1077, TY-1086, TY-1087, and TY-1104). Historic deposits at these sites are included in the discussion below.

Historic Dumps

Three sites (TY-1071, TY-1077, and TY-1083) are best described as dumps or sparse scatters of historic debris. Site TY-1071 is a small, concentrated dump covering an area no greater than 30 meters in diameter. It is in the southeastern portion of the project area, and probably was associated with the Vindicator Mine. Artifacts here consisted of stove parts, soldered seam cans, a turned-in-mold whiskey bottle, several purple glass fragments (probably from the same bottle) and fragments of a purple, pressed glass dish.

Site TY-1077 is a diffuse trash scatter covering an area of 2100 square meters. It is in the eastern portion of the project area along the slopes of Sherman Peak. Artifacts noted at TY-

Table 5. Lithic Scatters With Ground Stone Composition.

Site No.	Geology	Vege-tation	Flake Stage	P.Pt.	Bi-faces	Ground-stone	Flake Tool	Hammer-Stone	Bone	Orna-ment	Area (sq m)
TY 1075	Ridge	P/J	0,1,2,3	10	8	3	1		1		4,900
TY 1077	Ridge	P/J	1,2,3	9	4	1	2				90,000
TY 1086	Ridge/Fan	P/J	2,3	3		1	1		1	1	250,000
TY 1087	Ridge	Sage	0,1,2,3	18	14	3	2	1		1	180,000
TY 1088	Ridge	P/J	0,1,2,3	11	18	6		1			40,000
TY 1090	Ridge	Sage	0,1,2,3	6		1					35,342

Flaking Stage 0 = Shatter
P/J = Pinyon/Juniper

1077 include amber and purple bottle glass, a shovel, a kerosene can top, bailing wire, and a shoe heel. Several hole-in-top cans and two square buckets were also observed.

Site TY-1083 is a small trash dump located near the Return Mine in the northwest portion of the project area. Artifacts present consisted of numerous bottle and window glass fragments, a calibrated medicine bottle, 75 to 100 hole-in-top cans, meat tins, shoe leather, rubber boot parts, a table knife, and a leaf spring that has been sharpened to a point on one end. An aqua, Alhambra mineral water bottle was also found at this site.

Historic Dumps Associated With Structures

Five historic sites in the project area had small dumps associated with remains of structures: TY-1091, TY-1093, and the historic components at prehistoric sites TY-1086, TY-1087, and TY-1104. Site TY-1086 consists of a small (10' x 6') cabin depression with an associated scatter of refuse. The site covers approximately 50,000 square meters and is located on a low ridge in the eastern portion of the project area. Tins present in the scatter include hole-in-top cans, log cabin syrup cans, coffee cans, and condiment cans. Numerous glass fragments were also recorded and china fragments were noted. Several small concentrations of debris and mine tailings are scattered within a 500 meter radius of the structure depression.

Site TY-1087 consists of a sparse tin can scatter in association with a probable cabin depression. Cabin dimensions are approximately 5' x 10'. The site is located on a low ridge in the northeast portion of the project area, just above a small developed spring. All of the observed refuse is located within a 75 square meter area surrounding the cabin depression. Artifacts present include a stove top, shoe leather, hole-in-top cans, and milled lumber.

Site TY-1091 is an approximately 30' diameter dump associated with a very small (4' x 4') structure made from split logs and some milled lumber fragments; 5 gallon oil can tops and a layer of sod were used as roofing material. In one corner of the structure, a stove pipe protrudes through the roof. A windbreak was built in a tree to the south of the structure. Artifacts in the dump include shovels, broken and melted glass,

stove parts, hole-in-top and soldered-seam cans, and rectangular meat tins. A clock body and a tobacco tin were also observed.

Site TY-1093 is the remains of a juniper pole corral that measures 30 by 25 feet. A light concentration of historic debris was located along the southeastern side of the corral: purple, brown, and aqua bottle glass, a leather shoe heel, hole-in-top cans, and a Folgers coffee can lid. A wood splitting wedge was found near the base of a large juniper west of the corral. It was stamped "...son + Doblin". Wire nails and dimensional lumber were also located at this site.

The historic portions of TY-1104 are associated with the Vindicator Mine. Two small cabins, one a wood frame structure and the other of corrugated tin, are located on the east and west sides of a large exploration pit at the mine. A small dump containing glass, wire nails, and hole-in-top cans was located on the east side of the pit, near the wooden structure. The entire area had been extremely disturbed.

SITES SELECTED FOR FURTHER EVALUATION

As discussed in Chapter 5, prehistoric sites were evaluated and rated in terms of their artifact content. Seven sites (TY-1075, TY-1077, TY-1086, TY-1087, TY-1088, TY-1090, and TY-1103) were assigned scores of 6 or higher, thus requiring further evaluation.

Historic sites were not evaluated using the same criteria. These sites are generally in poor condition and few contain structural remains. As a result, we decided that only historic sites containing undisturbed deposits or structural remains would be evaluated: TY-1091 is the only site that fits these criteria. Three prehistoric sites (TY-1077, TY-1086, and TY-1087), however, also contained historic debris which we also examined and evaluated.

Table 6. Site Evaluation Rating Scores.

Site Number	Debitage Count	Proj. Points	Biface	Ground-stone	Other	Dist-urbed	Total
TY1071	Historic						-
TY1072	1	1					2
TY1073	7 isolates						-
TY1074	0	1					1
TY1075*	4	1	1	1	1		8
TY1076	0						0
TY1077*H	4	1	1				6
TY1078	6 isolates						-
TY1079	0						0
TY1080	1 isolate						-
TY1081	0						0
TY1082	0						0
TY1083	Historic						-
TY1084	3	1					4
TY1085	1	1	1				3
TY1086*H	5	1		1	1	-1	7
TY1087*H	5	1	1	1	1		9
TY1088*	5	1	1	1	1		9
TY1089	1		1		1		3
TY1090*	5	1	1		1	-1	7
TY1091*	Historic						-
TY1092	0	1					1
TY1093	Historic						-
TY1094	0						0
TY1095	0	1	1				2
TY1096	1						1
TY1097	1						1
TY1098	1 isolate						-
TY1099	1						1
TY1100	1						1
TY1101	4	1	1			-1	5
TY1102	4						4
TY1103*	5	1	1		1		8
TY1104	4	1					5

Debitage:	1-9	0 point	51-100	3 points
	10-25	1 point	101-500	4 points
	26-50	2 points	500+	5 points

* = Sites selected for intensive evaluation
H = Historic component present

Chapter 7

TEST RESULTS

PREHISTORIC SITES

One goal of this investigation has been to examine the more complex sites within the project area to better define their size and their relationship to nearby isolates and small sites. To accomplish this, each tested site was assessed to see if it consisted of distinct components. Thus, we hoped to identify activity areas within a site, assess the range of activities carried out in each area, and assess differences or similarities between site areas and types. Investigations at each of the seven sites are reported below.

Site TY-1075

Site TY-1075 covers approximately 5800 square meters (Figure 8) along the eastern side of the project area. It is situated atop a low ridge within the pinyon-juniper zone. Table 8 indicates that 23 tools were found, many (n=10) of which are projectile points. Six of the points could be identified as to type (see Table 9) and they range from the Elko Corner-notched to Desert Side-notched series. Most of the points, however, fall within the Rosegate Series, indicating a more intensive occupation between 1500 to 500 years B.P. Stage II bifaces (one of which appears to be utilized), flake tools, groundstone, and bone also occurred at TY-1075.

Two debitage inventory transects were examined at TY-1075. Transect 1 was oriented along the site's east/west axis and was 150 meters long. Thirty 5 by 5 meter inventory units were placed along this transect. Transect 2 was 60 meters long and was oriented north/south. Twelve 5 by 5 meter inventory units were placed along transect 2. Figure 8 shows the distribution of debitage along both transects. Debitage is concentrated in two places in the site, both near a rock outcrop. Eighty-one flakes were inventoried within locus 1, 56 flakes within locus 2.

Chert was the most common lithic material within locus 1 (87.7%); obsidian (9.9%) and basalt (2.5%) are present, but in significantly lesser quantities (Figure 9a). Locus 2 is very similar, with chert the predominate material type (71.4%).

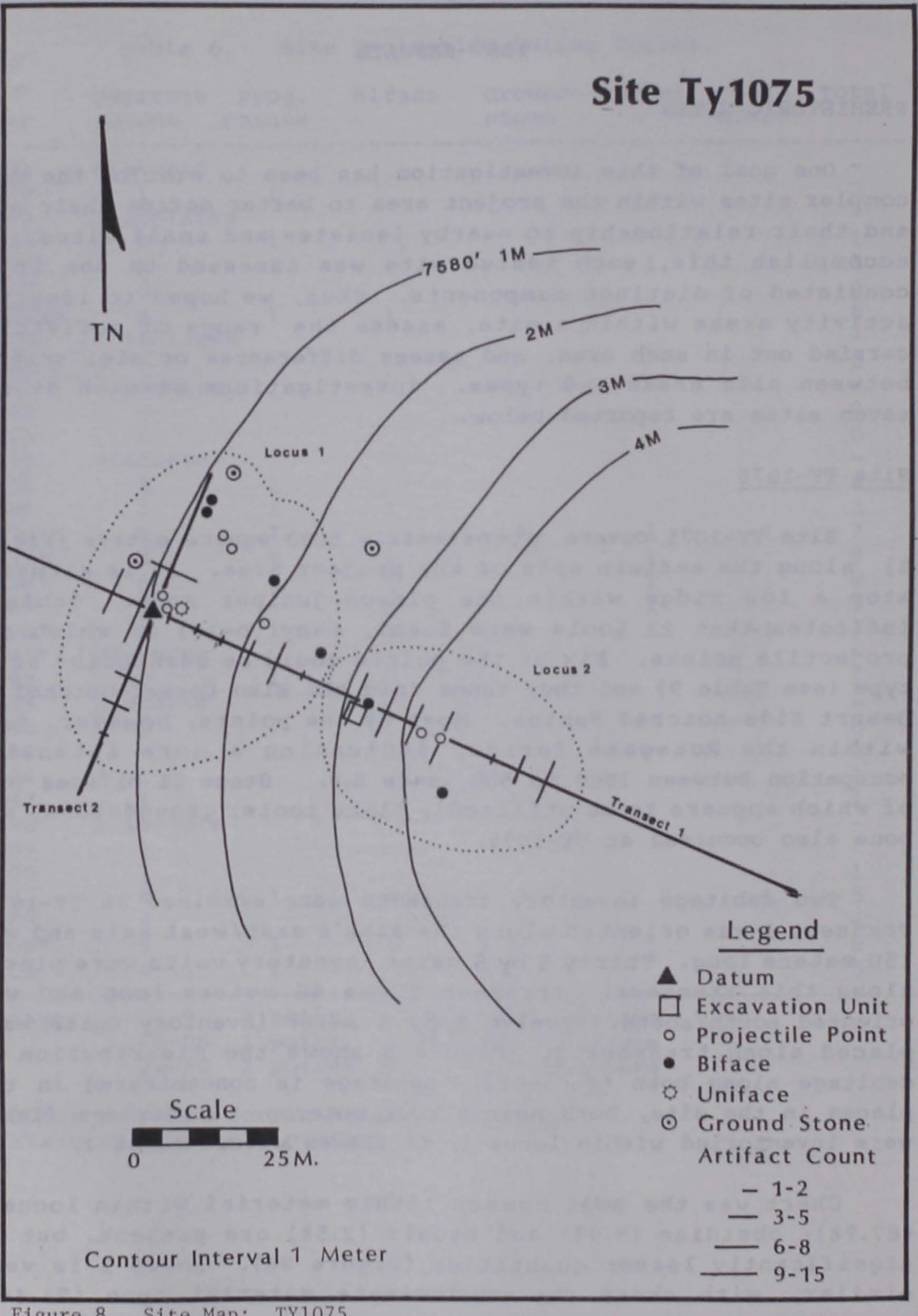

Figure 8. Site Map: TY1075

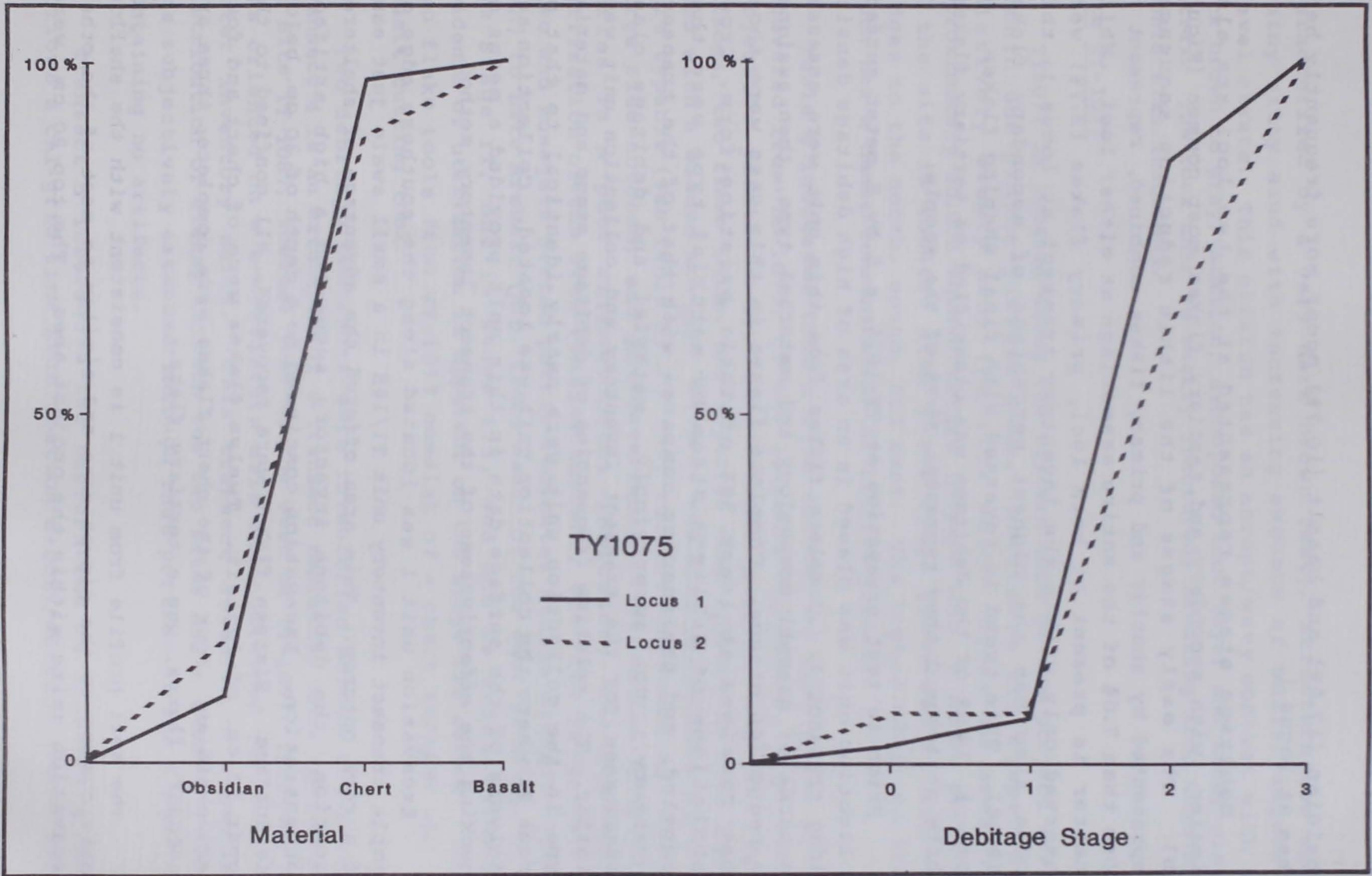

Figure 9a. TY1075 Debitage Distribution by Material Type

Figure 9b. TY1075 Debitage Distribution by Stage

Obsidian (17.9%) and basalt (10.7%) occur more frequently here than at locus 1.

Debitage stages represented at the two loci are also similar, with secondary and tertiary flakes most common (Figure 9b). The early stages of the lithic reduction sequence, represented by shatter and primary flakes combined, represent no more than 7.0% of the entire assemblage at either loci. While shatter is present at both loci, primary flakes (3.7%) were observed only within the inventory transect at locus 1: this locus also has the highest percentage of secondary flakes (79.0%). This trend is reversed with final shaping flakes. At locus 1, 14.8% of the debitage was classified as tertiary flakes, while at locus 2 they represent 39.3% of the sample.

Prior to test excavation at TY-1075, a 5 by 5 meter surface collection unit was placed in an area of high debitage density along transect 1. Complete flakes from this unit were assessed in terms of overall morphology and material type, then assigned to reduction stages. Complete flakes in this case were those that retained at least 90% of their pristine form. Cross tabulations of debitage stage by material type were then compiled, and the results compared with that of the transect inventory. Not surprisingly, material and debitage class percentages for the transect inventory and collection unit were similar. The relative frequencies of debitage stage and material type in the collection unit were nearly identical to that of locus 2, where the collection unit was located. Collection and analysis of the surface data in this unit provided a means of checking the effectiveness of the transect inventory method.

Excavation unit 1 was located along the southern edge of sample transect inventory unit T1/14E in a small swale just east of a rock outcrop. This area offered the advantage of sheltered location: the debitage inventory suggested a high artifact concentration. Excavation continued to a depth of 30 cm. below the surface. Sixteen flakes were recovered, all confined to the upper 10 cm. of deposit. Twelve flakes were of chert and four were obsidian. Four of the chert flakes were complete; three are secondary flakes, one a tertiary flake.

The soil profile from unit 1 is consistent with the shallow soils common to the pinyon zone and similar to most of the other excavation units within the project area. The top 20 cm. were

characterized by a very dark brown (wet), structureless and grainy silty sand with increasing amounts of small, angular gravel clasts. This stratum has an abrupt/wavy contact with a dark brown to gray, mottled, decomposed rock layer and sandy clay matrix. The rock unit is easily fractured, breaking into angular cobble size fragments.

Site TY-1077

TY1077 is located along the eastern edge of the project area within the pinyon-juniper zone. Artifacts are dispersed relatively evenly over the site which covers an area of approximately 30,000 square meters (Figure 10). A major portion of the site is located atop a low ridge protected by higher ridges to the north, south, and east. The higher ridge to the south has a dense concentration of lithics present.

Table 8 indicates that a wide variety of tool types were recovered from TY-1077. Of the 16 tools collected, most were projectile points (n=9); other tools present include four bifaces, two flake tools, and a pestle that appears to have been used with a wooden mortar. Five of the nine projectile points were typable (see Table 9) and they include the Humboldt, Elko, Large Side-notched, and Rosegate Series. Since the Humboldt Series is a poor chronological indicator, the earliest utilization of the site remains unclear, but the presence of Elko and Rosegate Series points indicates Middle Archaic (2000 B.C.) to Late Archaic (A.D. 1300) use. Of the four bifaces, two are Stage II, one is Stage III, and one is unidentified. Evidence of utilization is apparent on the Stage III biface. The two flake tools from TY-1077 consist of a chert scraper and a basalt cutting tool.

Two debitage transects were inventoried across the site. Transect 4 is an extension of a transect radiating from the datum at Site TY-1087, located just to the west of TY-1077. Transect 4 was oriented on a southeastern axis and contained 25, 5 by 5 meter inventory units. This transect revealed a sporadic distribution of flakes between the two sites and a site boundary was subjectively extended through that portion of the transect containing no artifacts.

Transect 5 intersects the eastern end of transect 4 and follows a CAI grid line from station 6+00E./48+00N., south 200

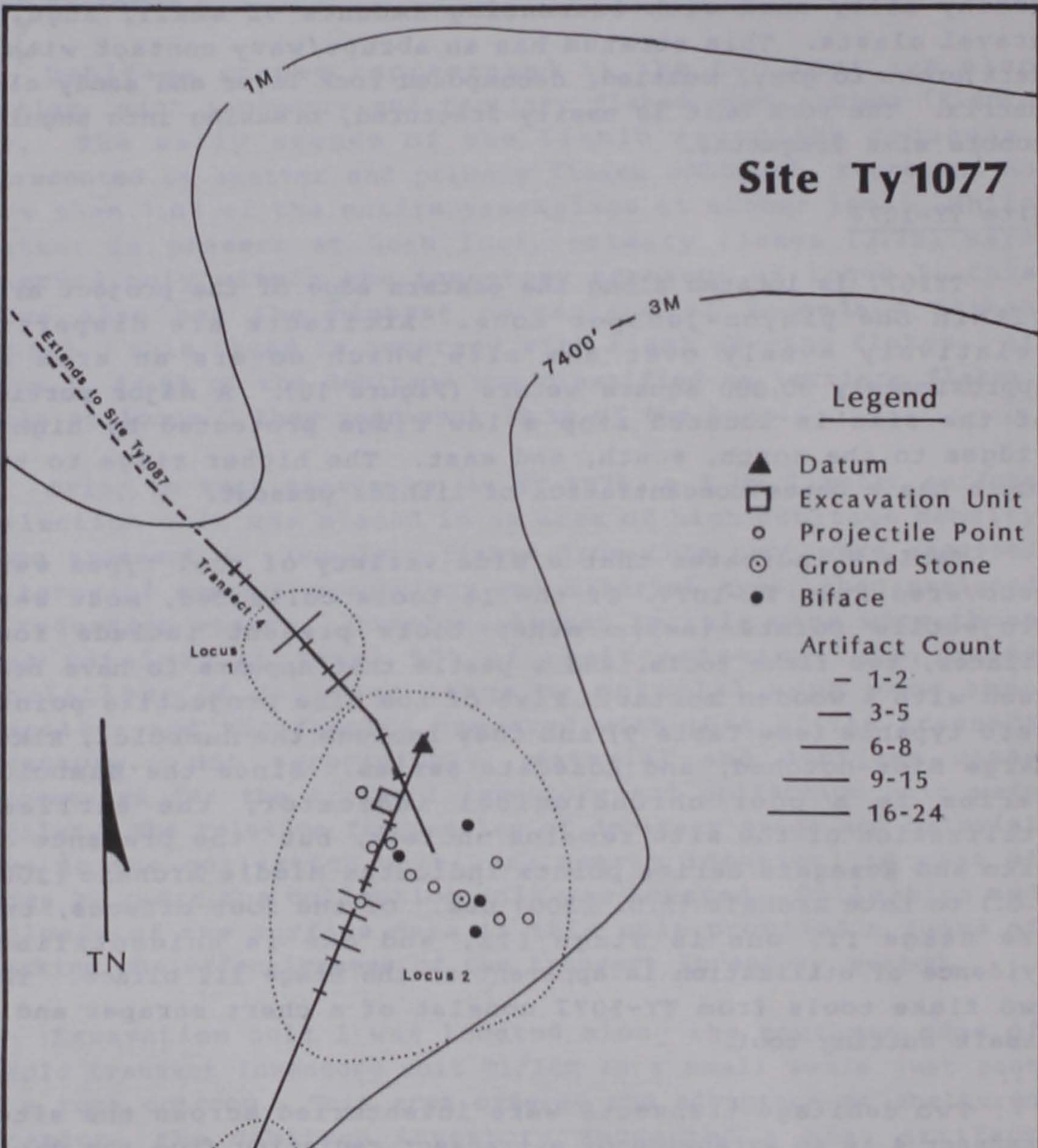

Figure 10. Site Map: TY1077

meters to a point near station 6+00E./40+00N. Forty, 5 by 5 meter inventory units were placed along this transect.

Three concentration loci were identified along transects 4 and 5. Locus 1 is a sparse concentration of 15 flakes located in seven 5 by 5 meter units in the western portion of transect 4. Locus 2 is the largest concentration, covering some thirty 5 by 5 meter units and accounting for thirty flakes. Like locus 1, locus 3 contained seven 5 by 5 meter inventory units. It is located atop the ridge marking the southern boundary of the site; 17 flakes were counted in the locus.

Figure 10a shows that each locus at TY1077 contained somewhat different proportions of material types. Chert is the only material present at locus 1 and it is the predominate material type at the other four loci. Obsidian and basalt are present in equal quantities at locus 2, and nearly 30.0% of the material from locus 3 is obsidian.

Debitage stages present in each of the three loci also show considerable variability (Figure 10b). At locus 1, secondary flakes are the most abundant (66.7%), followed by tertiary flakes (18.3%), and then shatter and primary flakes which combined comprise 15.0% of the sample. By comparison, locus 2 contained no primary flakes and shatter is more abundant (13.0%); at locus 3, both shatter and primary flakes are absent. Tertiary flakes are the predominate debitage stage present at both locus 2 and 3 (62.0% and 71.0%, respectively), outnumbering secondary flakes by a margin of better than two to one.

Prior to subsurface excavation, a 5 by 5 meter area was surface collected, producing six flakes; one is basalt and five are chert. While the surface collection did little to substantiate the debitage assemblage information obtained during the transect inventory, it does represent the rather sparse nature of the deposit at TY-1077.

Excavation unit 1 was placed in the northeastern portion of inventory unit T5/5S. Excavation was halted upon encountering a decomposed granite stratum that occurred near the bottom of the 20 cm. level. One chert flake was found during the excavation of the top 10 cm. level of the unit; no other cultural materials were encountered.

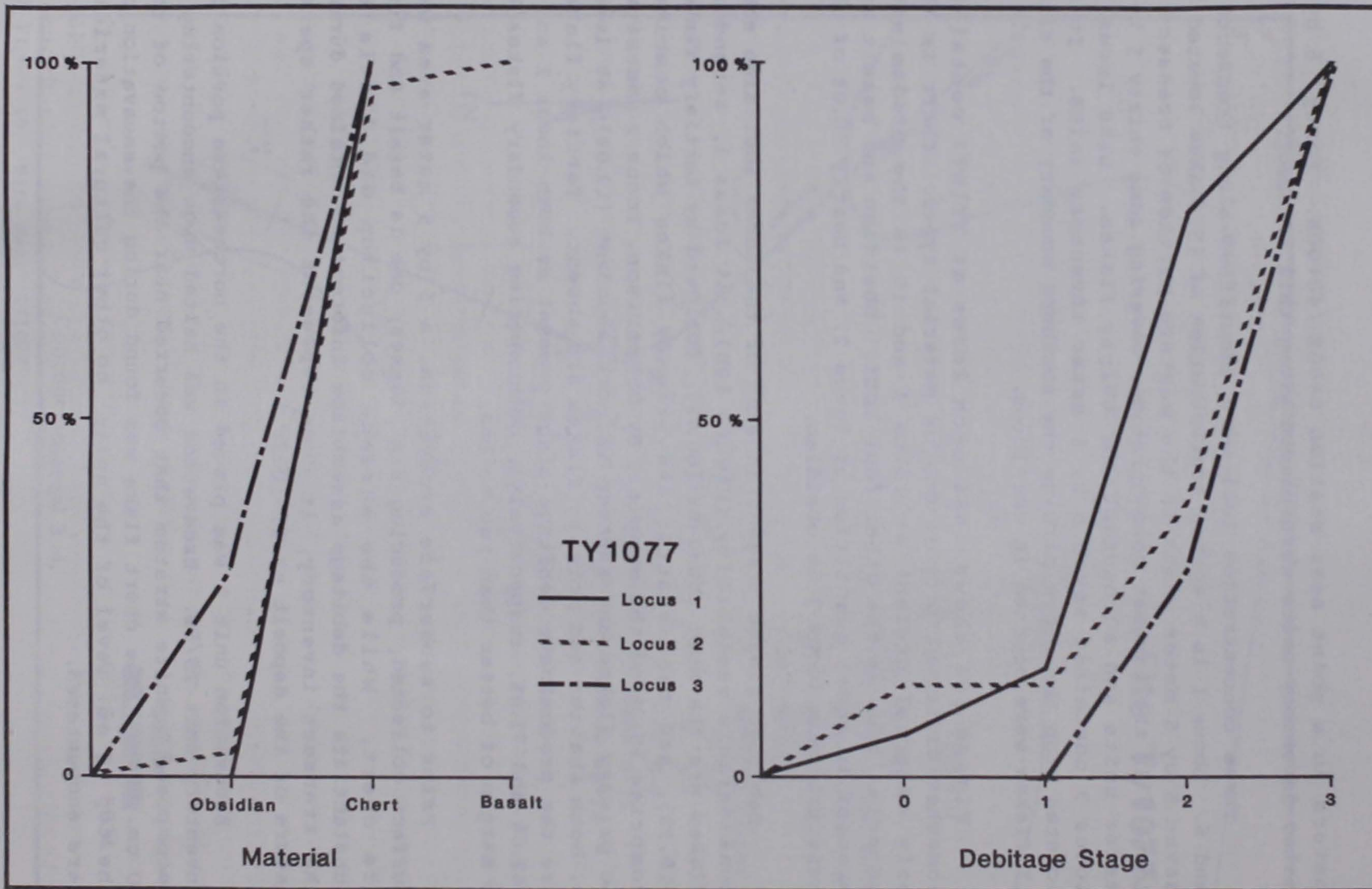

Figure 10a. TY1077 Debitage Distribution by Material Type

Figure 10b. TY1077 Debitage Distribution by Stage

At the time of excavation, soils at TY-1077 were quite wet and a soil profile was not composed. The unit level records indicate that the top 18 to 20 cm. of the deposit consist of a sandy silt matrix with common pea gravel and few cobble inclusions. This overlays the decomposed granite stratum. In sum, the soil profile seems to be quite similar to that of the other excavation units within the project area.

Site TY-1086

TY1086 is located in the east central portion of the project area. It lies atop a low, pinyon covered ridge that extends westward into the open valley and southward along a forested alluvial slope. The site covers an area of some 90,000 square meters, but the artifact density is sporadic, consisting of a series of small concentrations (Figure 11).

Seven tools were located at TY-1086 (see Table 8), including three projectile points (one fragmentary), a flake tool, a piece of groundstone, a slate pendant, and a bone fragment. One projectile point is a Rosegate, the other a Humboldt Series point. Dates of site utilization are again rather speculative since the Humboldt Series is a poor time marker, but the Rosegate point suggests a Late Archaic utilization. The flake tool is a modified flake whose function could not be assessed.

Two debitage transects were inventoried at TY-1086. Transect 1 extended from the site datum south some 450 meters. Ninety, 5 by 5 meter inventory units were examined along the transect. The 20 northernmost inventory units occurred in an area that had been disturbed by a bulldozer cut. Portions of the transect south of this point are heavily wooded and the surface is covered by duff. During the initial survey a small concentration was located in an area bisected by the south end of transect 1. Artifact distribution along transect 1 was so dispersed that distinct concentrations were not evident. The distribution of artifacts within inventory units along the transect indicates that the southern portion of TY-1086 can be characterized as a number of isolated, limited activity loci.

The ground surface along transect 2 was more visible. This transect is located across the north portion of TY-1086, extending east from the site datum through the site's densest

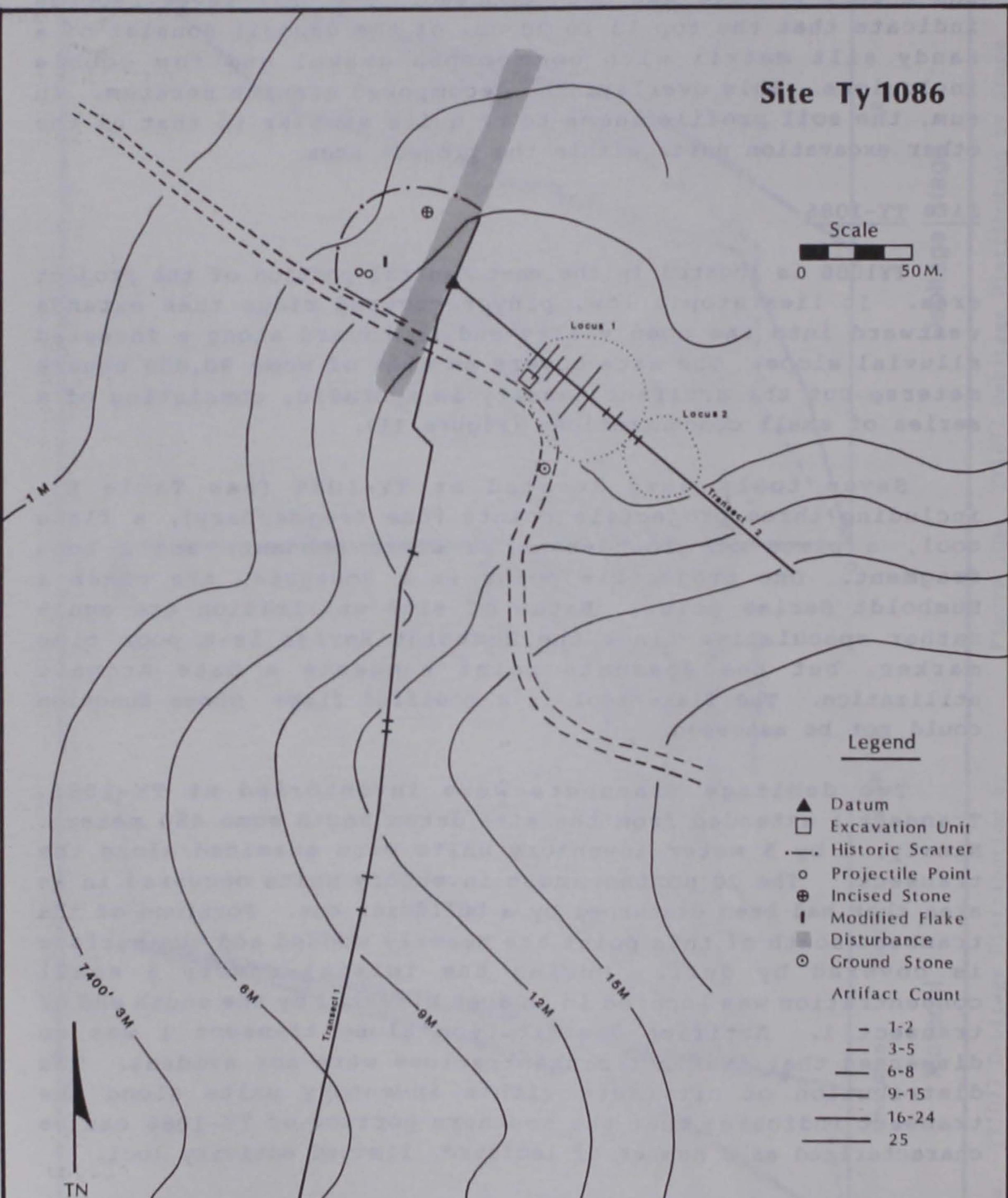

Figure 11. Site Map : TY1086

artifact concentration. Forty, 5 by 5 meter inventory units were placed along the 200 meter length of the transect. The distribution of debitage along transect 2 indicated the presence of two concentrations. Locus 1 is the largest, with eighty-three flakes coming from eight, 5 by 5 meter units. Locus 2 is a smaller concentration immediately east of locus 1: ten flakes were recorded in five 5 by 5 meter units here.

Very little similarity is evidenced between the two concentrations with regard to material types and debitage stages (Figures 11a and 11b). The debitage assemblage at locus 1 is almost entirely chert (97.6%), while chert and obsidian are present in equal amounts at Locus 2. Small proportions of shatter and primary flakes are present at locus 1, but the assemblage is dominated by secondary flakes (59.0%) with tertiary flakes comprising the remainder. Shatter and primary flakes are not present at locus 2. Secondary flakes make up only 20.0% of the debitage assemblage and tertiary flakes (80.0%) make up the largest proportion of debitage at this loci.

A depression was located in locus 1, measuring approximately two meters in diameter and its deepest point was 10 cm. below the surface. It was surrounded by pinyon trees and covered with a heavy layer of duff. Prior to excavating a test unit within the depression, a 5 by 5 meter unit encompassing the depression was staked and all surface artifacts collected. Ten flakes were recovered, only one of which was complete.

Excavation unit 1 was excavated to a depth of 30 cm.; half the unit was then excavated to 40 cm. to obtain more stratigraphic information. The 30 to 40 cm. level was not screened. This unit provided a classic example of the effect of duff on the visibility of surface remains. Sixty-seven flakes were recovered from unit 1, all of which were within 5 cm. of the surface. The thickness of the duff averaged 4 cm. A Rosegate projectile point and a bone fragment were also recovered from the upper 5 cm. of the unit.

Of the 67 flakes recovered, only 25 were complete and could be analyzed. Percentages of material types and debitage stages show a pattern similar to that of the locus in which the excavation unit was placed. Chert is the predominate material type (96.0%), with obsidian (4.0%) making up the difference. Shatter and primary debitage accounts for 4.0% of the assemblage,

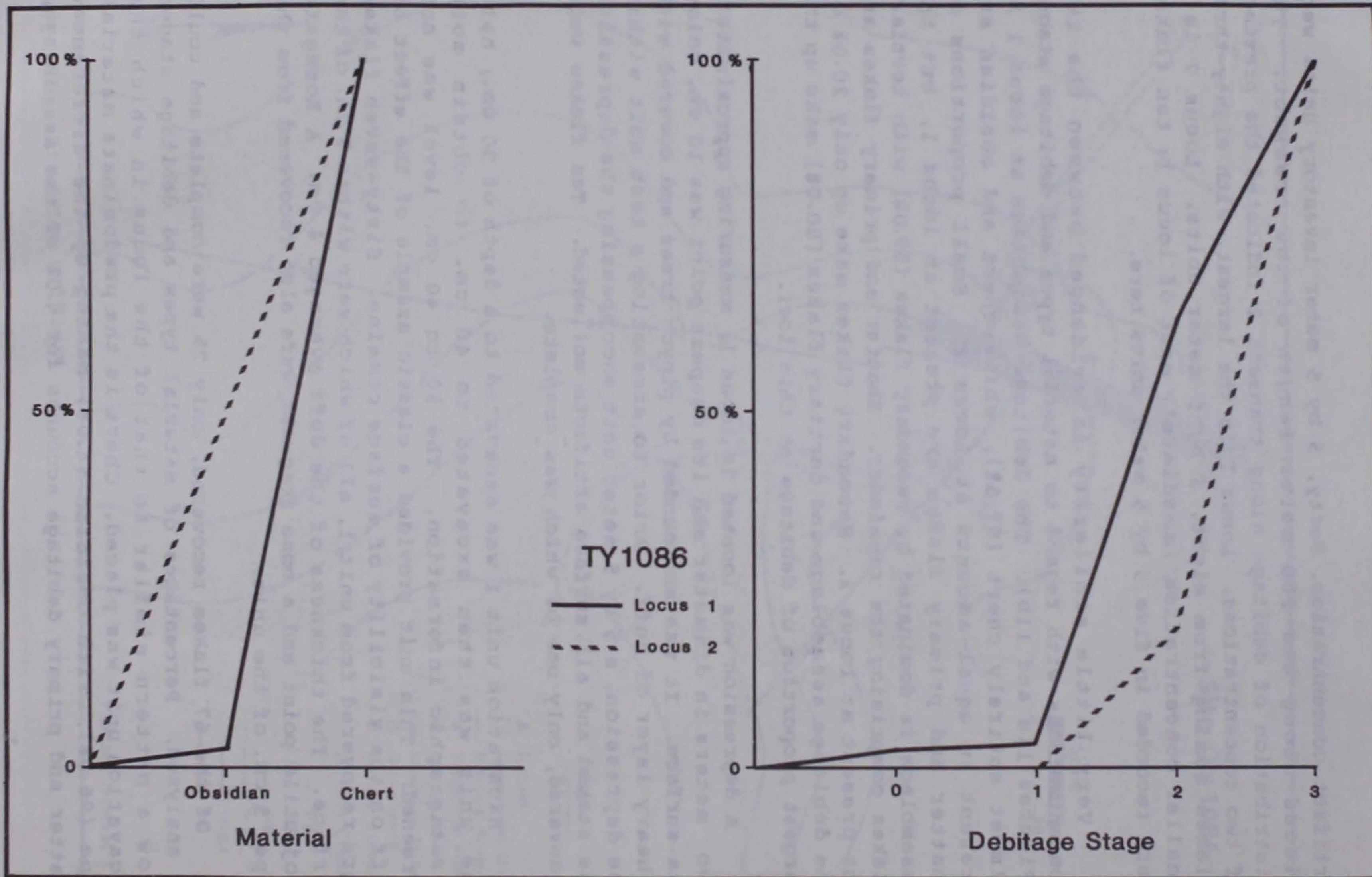

Figure 11a. TY1086 Debitage Distribution by Material Type

Figure 11b. TY1086 Debitage Distribution by Stage

while the secondary and tertiary stages comprise the greatest proportion of analyzed artifacts.

While the artifact density from excavation unit 1 was high and hinted that the depression may have been a shallow house pit, stratigraphic data suggest otherwise. The identifiable strata all exhibit a uniform contour; no depression is indicated.

As previously stated, a 4 cm thick duff layer covered the entire unit. Underlying this is a very dark brown A horizon consisting of fine-grained silt with many small rootlet and charcoal inclusions. This horizon averages 12 cm. in thickness and generally conforms to the slope of the depression. A small krotovina was located in the northern portion of the profile, and rootlets appear to terminate at an abrupt wavy contact with the lower stratum. A decomposed bedrock C horizon underlies the A horizon beginning at a depth of 16 cm. This unit is 11 cm. thick and consists of a coarse, stony clay loam. Very few fine roots were observed in the stratum, but roots as large as 5 cm. in diameter were common. Roots located near the boundary of the A horizon appeared charred. The C horizon also conforms to the shape of the depression. A friable granite horizon has a wavy contact with the C horizon at a depth of approximately 27 cm; it too conforms to the depression contours.

Had the depression at TY1086 been a house pit, most likely it would have been excavated through the naturally formed horizons by its builders. The resulting profile should show an intrusive pit intercepting relatively horizontal stratigraphy. Since all strata within the excavation unit are evenly bedded, it appears that the depression is of natural origin.

Site TY-1087

TY-1087 is located in the northeastern portion of the project area and covers approximately 125,000 square meters (Figure 12). Situated atop a series of low ridges in open sage, the site consists of a series of concentrations on each ridgetop. The largest concentration is adjacent to a small spring.

Thirty-nine artifacts were collected at TY1087: 18 projectile points, 14 bifaces, 2 flake tools, 1 hammerstone, 3 groundstone fragments, and a steatite pendant. Projectile point types indicate a temporal span of nearly 6000 years, ranging from

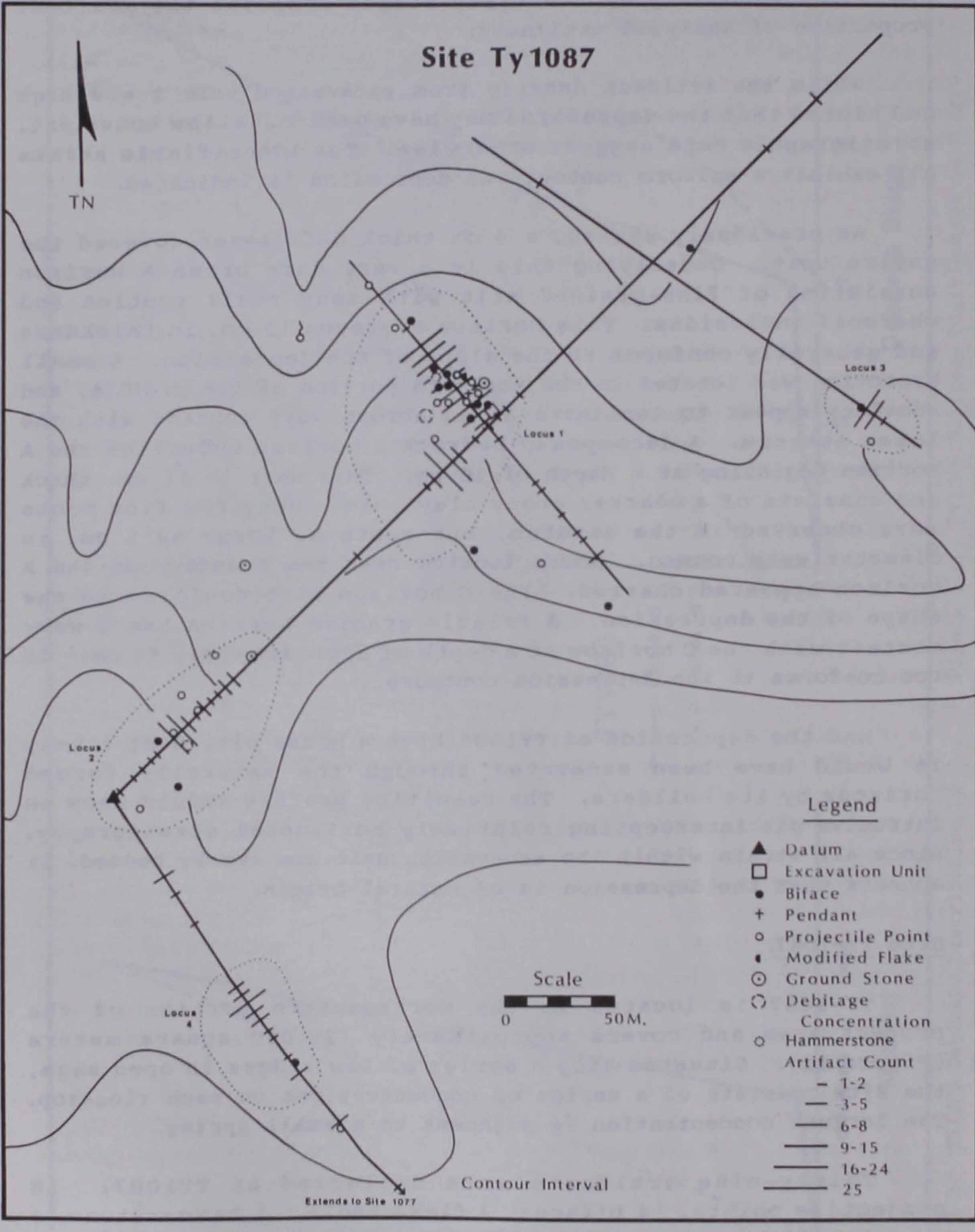

Figure 12. Site Map: TY1087

the Early Archaic to the end of the Late Archaic (see Table 9). The most frequent type (n=5) falls within the Elko Series, (Middle Archaic Period), suggesting that utilization of the site occurred most frequently at this time. The horizontal distribution of projectile points was examined to determine whether loci at TY-1087 were used during different time periods. A similar distribution and range of projectile point styles was found at each of the site's larger loci, suggesting that neither loci was preferred during a specific period.

None of the six Stage I and II bifaces and two unidentifiable fragments (see Table 11) found at TY-1087 exhibited evidence of utilization. Of the six Stage III bifaces located, two were utilized. Each of the two larger site loci produced one Stage III biface. Groundstone also occurs at the two larger site loci. The remaining artifacts are, however, confined to the largest of the site's concentration areas.

Four loci were identified at TY-1087 on the basis of the debitage inventory transect data as well as artifact concentrations. Locus 1, the largest, is located atop a low ridge in the south central portion of the site. The locus covers approximately 7500 square meters and was crossed by both transects 1 and 3. Twenty transect 1 inventory units were examined within locus 1, 10 of which contained cultural material. Thirteen of the 25 transect 3 inventory units within the locus contained artifacts. Locus 2, which covers 5000 square meters, is located atop a low ridge in the southwestern portion of the site. Some 20 inventory units of transect 1 cross this locus. Locus 3 is a small concentration of debitage associated with an Elko Corner-notched projectile point and a biface fragment. It is located on a low knoll along the eastern periphery of TY-1087. Locus 3 covers an area of approximately 1500 square meters and was traversed by transect 2. Of the ten inventory units examined at locus 3, only three contained cultural material. Locus 4 is another small concentration area. It is located in the southern portion of TY-1087, mid-way between locus 2 and site TY-1077, on transect 4. This locus lies on a gently sloping alluvial fan within a sparse pinyon forest and covers an area of approximately 2400 square meters. Thirteen inventory units traverse locus 4, ten of which contained cultural material.

The frequency of debitage material types from all four loci at TY-1087 is similar (Figure 12a). Chert is the predominate

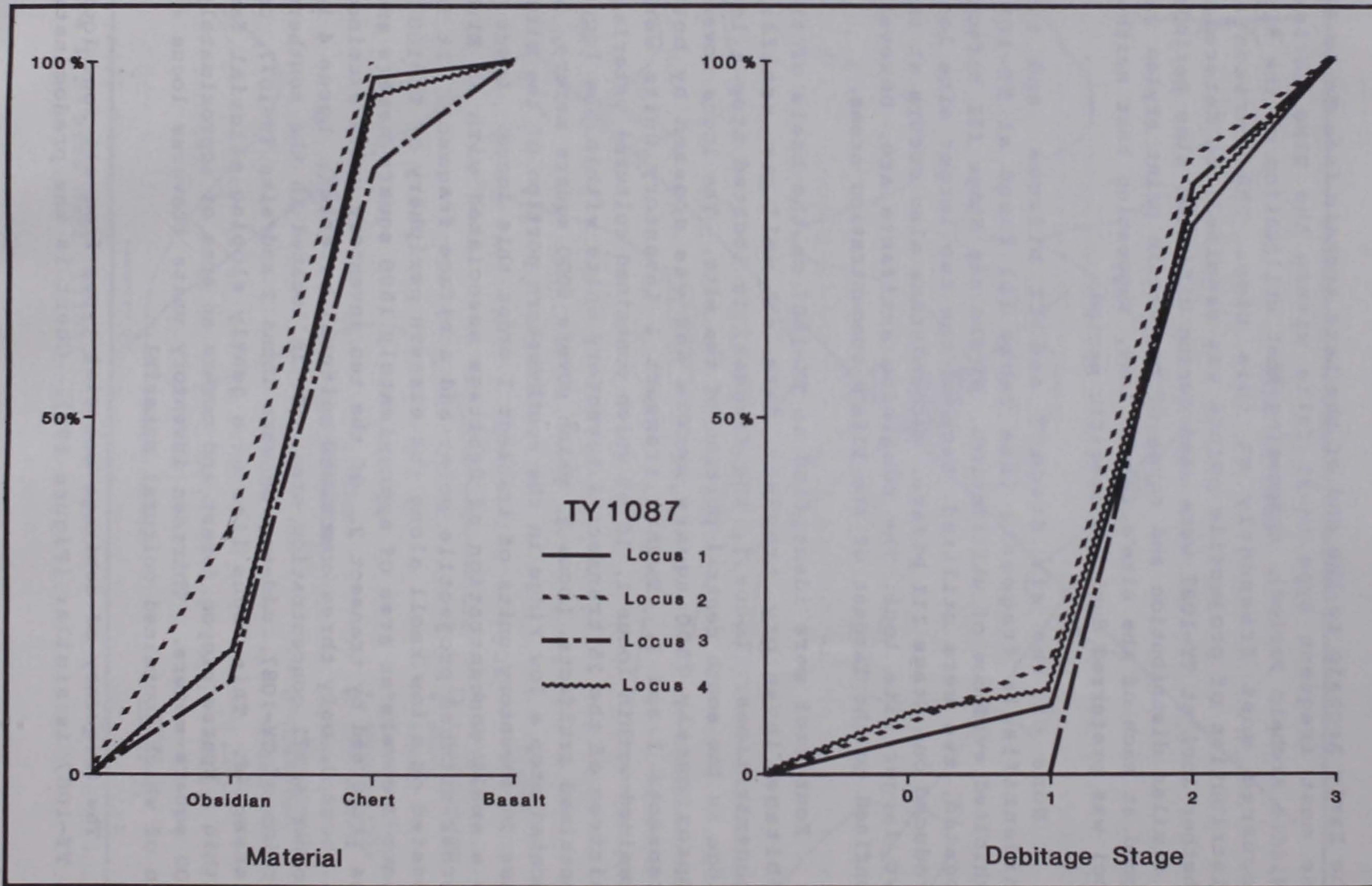

Figure 12a. TY1087 Debitage Distribution by Material Type

Figure 12b. TY1087 Debitage Distribution by Stage

material: obsidian is most abundant at locus 2 and occurs in smaller amounts at the other three loci. Basalt is absent from locus 2, while small percentages were found at locus 1 and locus 4. Basalt and obsidian are present in equal amounts at locus 3. Debitage stages at the four loci are also similar (Figure 12b). Secondary waste flakes make up the majority of the debitage assemblage at all loci, while tertiary flakes comprise the next largest percentage. Shatter and primary flakes are present at all but locus 3, but generally occur in proportions less than that of tertiary flakes.

Thirty-seven flakes were collected from the surface of a 5 by 5 meter collection unit in the northern one-half of inventory unit T3/2W. Thirty-three are chert flakes, three are obsidian, and one is basalt. Only five flakes were complete enough to allow analysis; three were secondary flakes and two were tertiary flakes. Too few specimens could be analyzed for an adequate comparison with the results of the debitage transect.

Two small concentrations were also mapped and collected at TY-1087. Concentration 48-1 was located within locus 1, while concentration 7-1 was collected in locus 2. Debitage from a 1 square meter area was collected from each concentration and complete pieces were analyzed by stage and material type. In order to distinguish varieties of chert, debitage was sorted by color. We felt this was one way in which special use areas (chipping stations) could be more easily identified. Five chert types were identified, ranging from opaque white to yellowish red. Table 9 shows the distribution of debitage by material and flaking stage for each concentration.

Concentration 48-1 contained only chert type 5 which is white and opaque with a slight red mottling. A total of 185 specimens was collected, 62 of which were complete enough to be analyzed. Concentration 7-1 yielded 175 flakes of which 74 were complete; the majority are chert type 4, which is banded red, white, and cream. Both concentrations appear to represent assemblages typical of small chipping stations. Flaking stages show that the majority of activity was directed at preliminary artifact shaping.

Weight/Item ratios (WIR) were calculated by debitage flaking stage at each of the concentrations. WIRs roughly correspond to flake size and, along with flaking stages, illustrate the

affinity of a debitage assemblage to either the early or later stages of the production sequence. Sites with large quantities

Table 7. Frequency of Material and Debitage Stage at Concentrations 48-1 and 7-1.

Material Type	Primary	Secondary	Tertiary	Biface Thinning	Total	%
Concentration 48-1						
Chert 5	10	43	3	6	62	100.0%
	16.1%	69.4%	4.8%	9.7%	100.0%	
Concentration 7-1						
Chert 1		1			1	1.4%
2		1		1	2	2.7%
3	1	3		1	5	6.8%
4	16	37	5	8	66	89.1%
	17	42	5	10	74	
	22.9%	56.8%	6.8%	13.5%	100.0%	

of heavy primary flakes are often quarries, while a higher proportion of lighter, later stage flakes usually represent tool maintenance or production at residential camps.

At concentration 48-1, the primary stage flakes had the highest WIR (1.69 gms.). This ratio drops to 0.59 gms. for secondary stage flakes and 0.10 gms. for tertiary flakes. The WIR of biface thinning flakes is intermediate (0.87 gms.). A similar trend occurs at concentration 7-1. Primary flakes are again the heaviest (1.60 gms.), followed by biface thinning flakes (1.13 gms.). These thinning flakes exhibit a slightly higher WIR than those from concentration 48-1. The WIR of secondary stage flakes at Concentration 7-1 is 0.94 gms., that of tertiary flakes 0.16 gms.

Excavation unit 1, located along the northern edge of inventory unit T3/2W, was excavated to a depth of 30 cm., where the unit was halved along its east/west axis and the northern portion dug to the 40 cm. level. Twelve flakes were recovered;

11 are from the 0 to 10 cm. level and one from the last screenful of spoil from the 10 to 20 cm. level. Prior to recovery of the last flake, the sidewalls of the excavation unit had been scraped clean, and it is most likely that the original provenience of this single flake was within the upper 10 cm. of the deposit. Cultural material was not found within the 30 or 40 cm. level.

The upper 20 cm. of the unit 1 soil profile is characterized by dark brown sandy silt with 5% pea gravel and cobble size inclusions. This stratum then has an abrupt, wavy contact with a light gray, brown mottled decomposed rock C horizon. A few larger cobbles were noted near the contact of the two horizons.

<u>Site TY-1088</u>

TY-1088, located in the southeastern portion of the project area, covers an area of 80,000 square meters. The site is situated atop a low knoll within the pinyon-juniper forest (Figure 13). Most artifacts are concentrated within the central portion of the site, but some extend northward and downslope towards the Vindicator Mine.

A total of 36 artifacts were collected from the surface of TY-1088 (see Table 8). Most of these (n=18) are bifaces, 11 are projectile point fragments, and 6 are groundstone fragments. A hammerstone was also found at TY-1088. Table 8 shows that of the 18 bifaces collected from TY-1088, only one exhibits any sign of utilization. Seven Stage II and seven Stage III bifaces were collected at the site. Two bifaces were unidentifiable and two were Stage I specimens. One Stage III biface had been utilized.

Only five points from TY-1088 could be typed (see Table 9). The Elko and Rosegate Series each account for two, while the remaining artifact is in the Gatecliff Series. Utilization of the site area, then, spans a time period beginning during the Early Archaic period (4000 B.C.) and extending into the middle of the Late Archaic period (A.D. 1200).

Two debitage inventory transects were placed across TY-1088. Transect 1 was oriented along a north/south axis through the site datum and transect 2 follows an east/west line through the datum. Thirty-five, 5 by 5 meter units were inventoried along transect 1, 20 along transect 2.

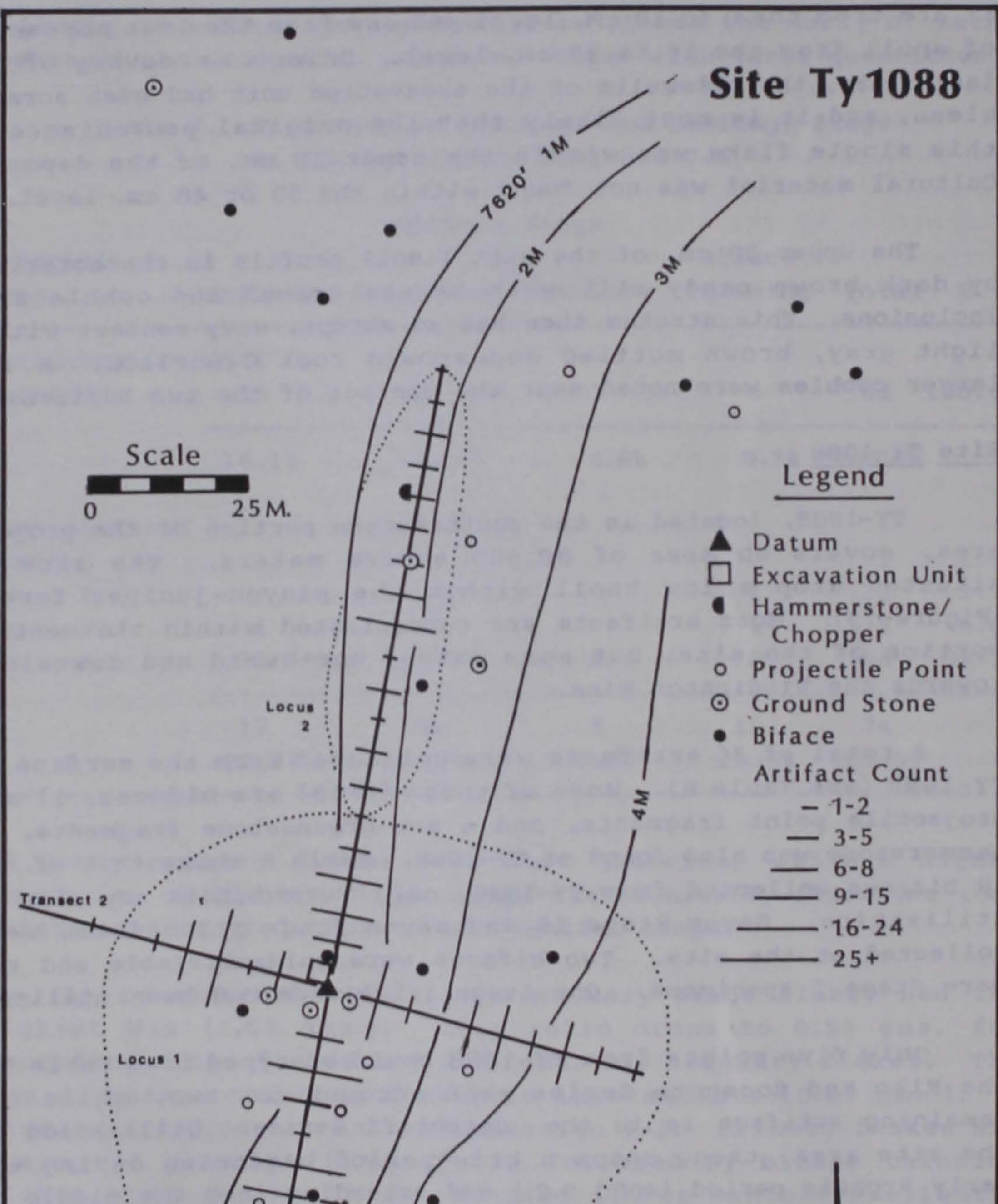

Figure 13. Site Map: TY1088

Two rather large concentrations of lithic material were identified. Locus 1 covers the entire southern half of the site. Thirty-five 5 by 5 meter inventory units were examined within locus 1. Of these, 32 contained cultural material. Locus 2 extends north from locus 1 along transect 1 and was traversed by 15, 5 by 5 meter inventory units. All of these contained cultural material. Divisions between loci at TY-1088 are at best tenuous. Trees and accumulations of duff occasionally obscured the ground surface along both transects and significantly reduced flake counts. This may have biased the definition of loci boundaries.

Figures 13a and 13b show that the distribution of material types and flaking stages at the two loci are almost identical. Chert is by far the predominate material, and secondary and tertiary flakes are present in similar proportions. Early stage debitage is noticeably scarce.

Intra-site variability within the debitage assemblage was reassessed by dividing the site into seven smaller loci; five located within locus 1, two in locus 2. While the frequencies of debitage material and stage from each new loci showed slightly more variation than that of the more general data set, the results were still quite similar. In summary, the debitage assemblage at TY-1088 failed to show much evidence of intra-site variability.

A 5 by 5 meter surface collection unit was placed just north of the site datum and covered the western half of inventory unit T1/1N. Thirty flakes were collected from the surface of this unit. Twenty-six of these were of chert, the remaining four of obsidian. All four of the obsidian flakes and four chert flakes were complete. Secondary flakes are the most common debitage type represented in the analyzed sample (62.5%), followed by biface thinning flakes (25.0%), and tertiary flakes (12.5%). No primary flakes were identified in the sample.

Excavation unit 1 was located along the transect 1 centerline three meters north of the site datum. It was excavated to a depth of 30 cm. Cultural materials were limited to two chert flakes in the upper 10 cm. of the deposit.

Soils in unit 1 are similar to those from previously described sites. The A horizon is a very dark brown sandy silt

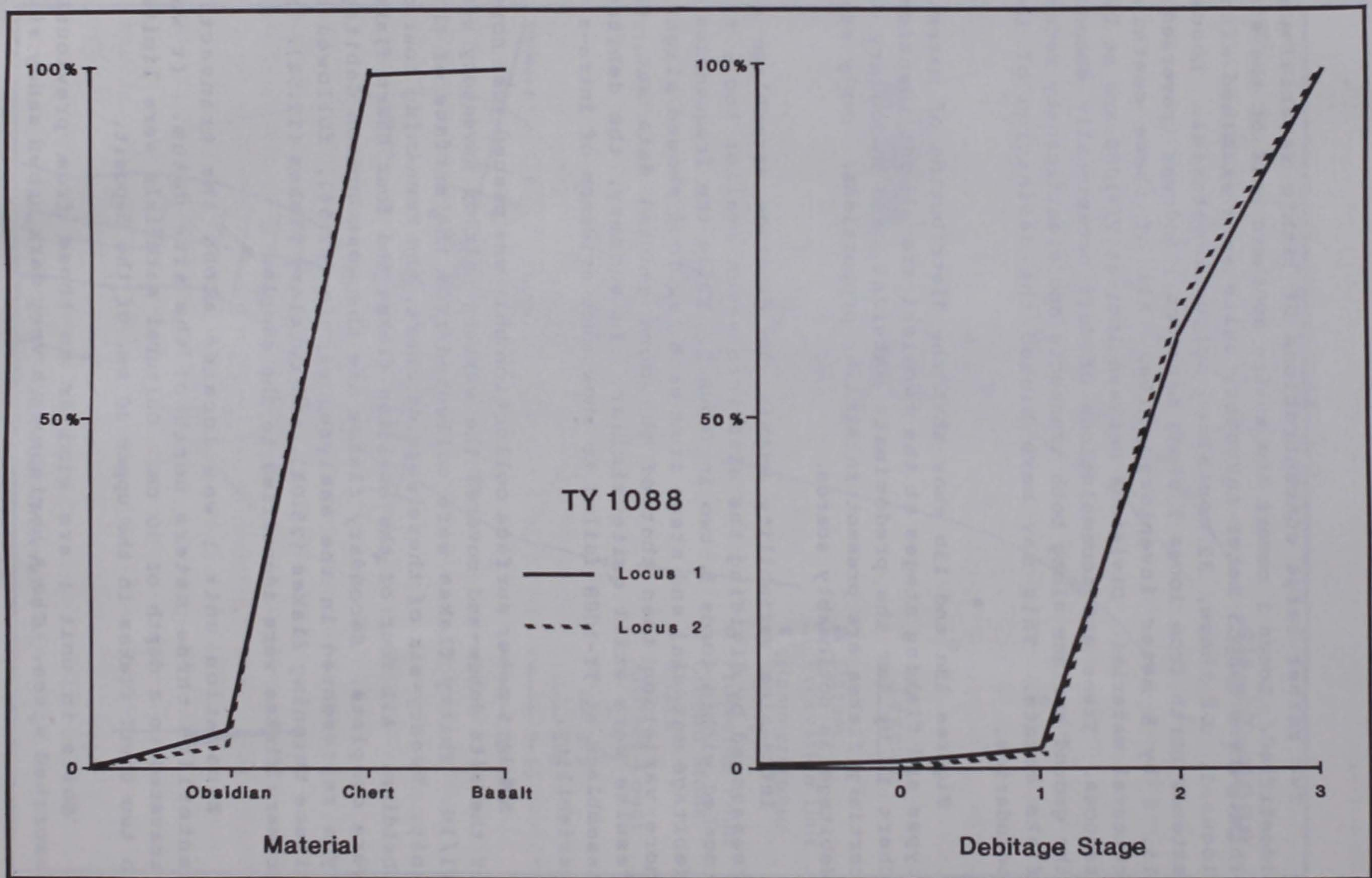

Figure 13a. TY1088 Debitage Distribution by Material Type

Figure 13b. TY1088 Debitage Distribution by Stage

with pea gravel and cobble inclusions. This soil is weakly structured and has an abrupt wavy contact with a C horizon at 18 to 20 cm. below the surface. The C horizon consists of pale brown and dark brown mottled sandy clay and decomposed rock matrix. It is slightly sticky and plastic with a coarse, weak, grainy structure.

Site TY-1090

TY-1090 is located along the western side of the project area on a low ridge located above the Return Mine. Juniper trees occur on the ridge top, but the site generally lies within an open sage environment along the fringe of the pinyon-juniper zone. Artifacts at TY-1090 are widely distributed, resulting in a large site area (approximately 15,000 square meters) of low density (Figure 14). The eastern side of the site has been disturbed by mining activities.

Seven tools were collected from TY-1090 (see Table 8). Of these, six are projectile points and one is a groundstone fragment. Three projectile points could be keyed (see Table 9) and indicate a Late Archaic (A.D. 500 to A.D.1200) utilization of the site. The keyed projectile points include two Rosegate Series and a Humboldt Series point.

Two debitage transects were inventoried across TY-1090. Transect 1, 150 meters long, was oriented along an axis following the approximate ridge midline (20^{o} east of north). Thirty inventory units were placed along transect 1; nine contained cultural remains. Transect 2 is 90 meters in length and runs perpendicular to transect 1. Eighteen, 5 by 5 meter inventory units were placed along transect 2; nine contained cultural material.

An attempt was made to identify concentrations at TY-1090. However, most of the units contained only one artifact, thus reiterating the dispersed nature of the artifact assemblage. Figures 14a and 14b show the trends of debitage materials and flaking stages for the entire site. Chert was again the predominate material type, while secondary and tertiary flakes dominate the flaking stage sequence.

The depositional environment at TY-1090 is residual in nature and, coupled with the light artifact distribution,

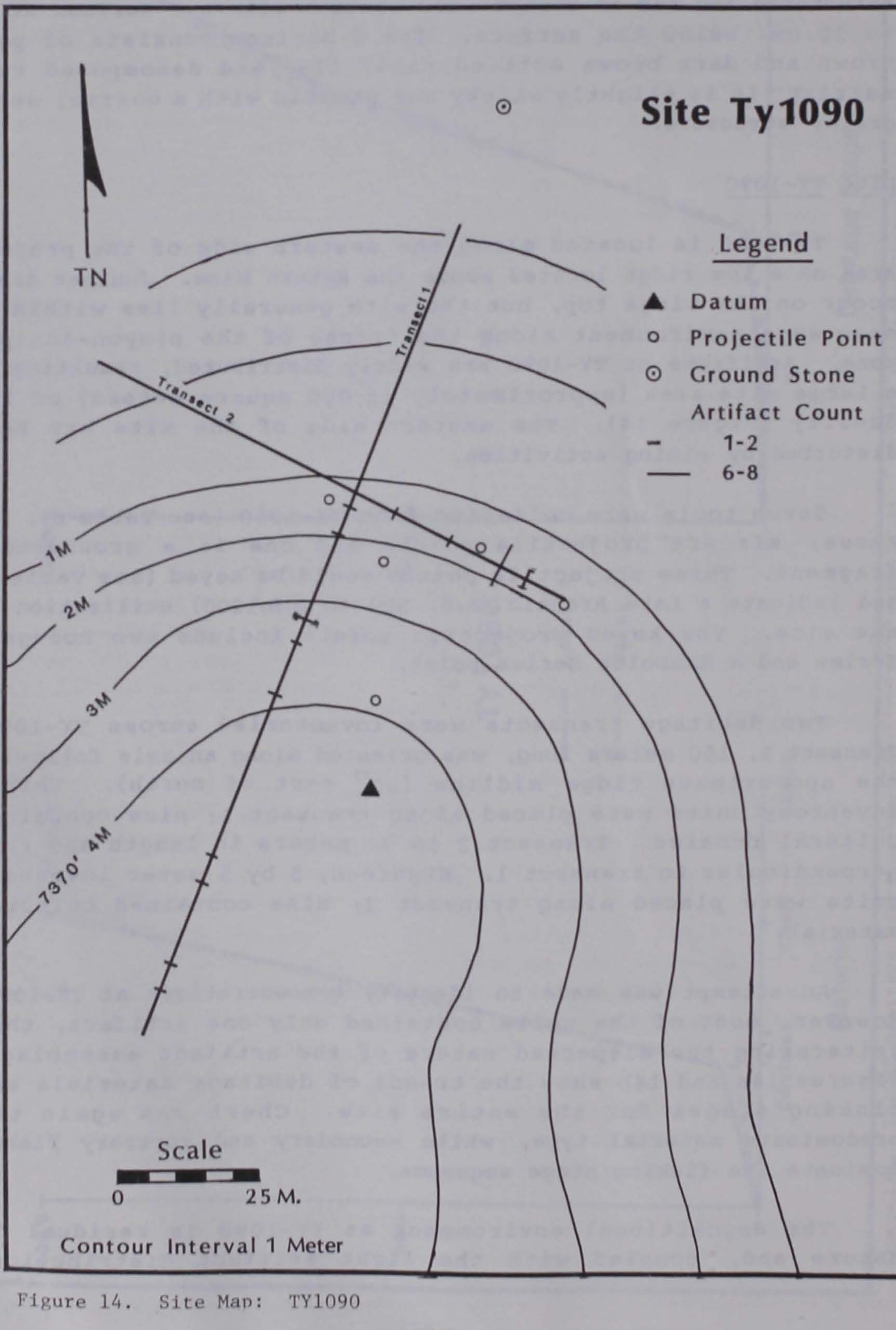

Figure 14. Site Map: TY1090

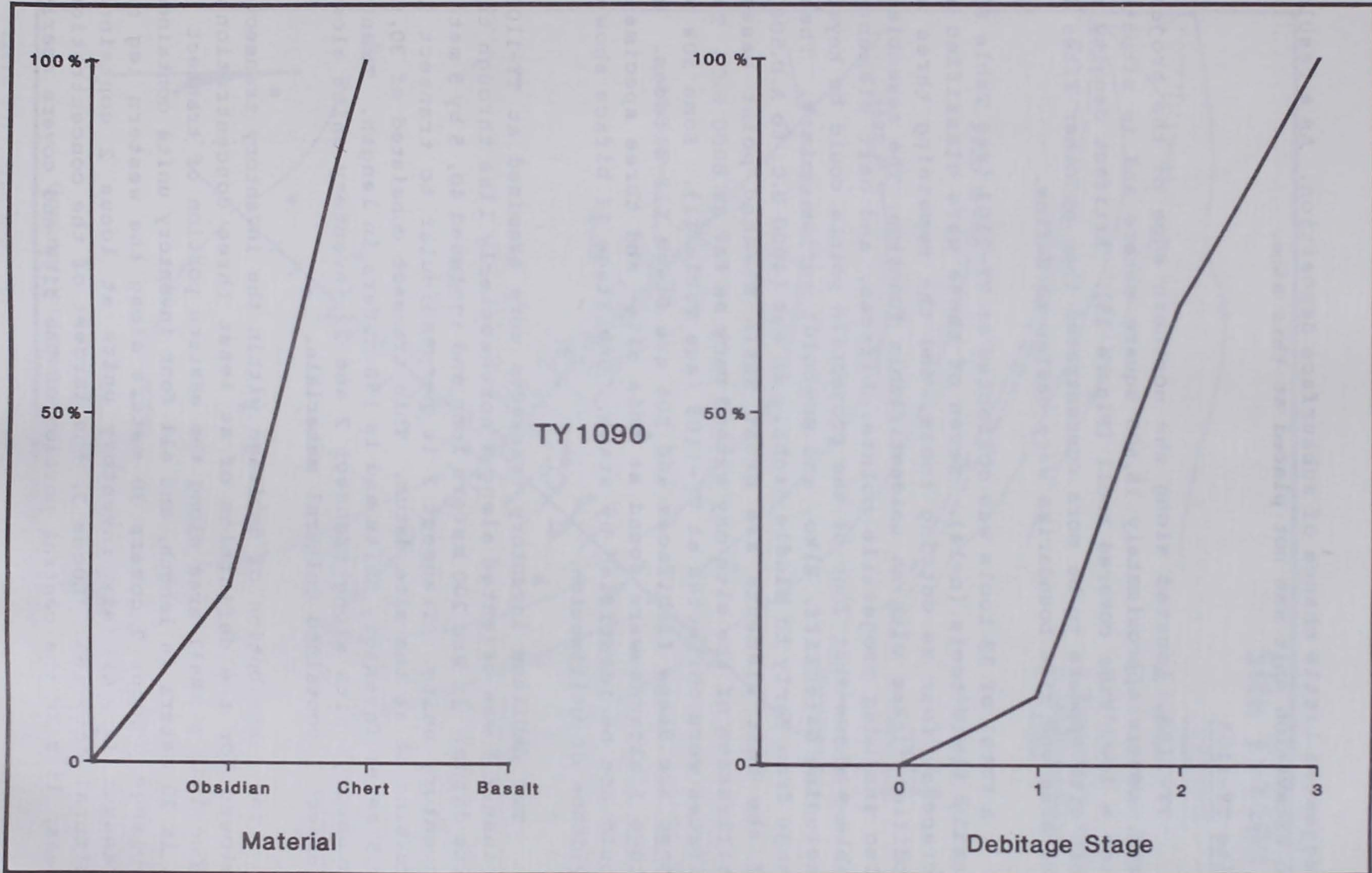

Figure 14a. TY1090 Debitage Distribution by Material Type

Figure 14b. TY1090 Debitage Distribution by Stage

suggested little chance of subsurface deposition. As a result, an excavation unit was not placed at this site.

Site TY-1103

TY-1103, located along the northern edge of the project area, covers approximately 15,600 square meters and is situated atop a low, sage covered knoll (Figure 15). Artifact density at this site appears to be more concentrated than at other sites in the area and site boundaries were easier to define.

A total of 33 tools was collected at TY-1103 (see Table 8), mostly flake tools (n=14). Seven of these were classified as scrapers, four as cutting tools, and the remaining three as modified flakes with an unidentifiable function. The assemblage also includes projectile points, bifaces, and haft elements. Table 9 shows that four of the projectile points could be keyed, including Gatecliff, Elko, and Humboldt series points. These range from Early to Middle Archaic in age (4000 B.C. to A.D.500). If the haft elements are Great Basin Stemmed point bases, utilization of the site may extend back as far as 8000 B.C. Ten bifaces were collected at TY-1103 (see Table 11). Some 50% of these are Stage II bifaces and 20% are Stage III bifaces. No Stage I bifaces were found at this site and three specimens could not be identified by stage. One Stage II biface showed evidence of utilization.

Two debitage inventory transects were examined at TY-1103. Transect 1 was oriented along a northwesterly line through the site datum. It was 200 meters long and included 40, 5 by 5 meter inventory units. Transect 2 is perpendicular to transect 1, crossing it at the site datum. This transect consisted of 30, 5 by 5 meter inventory units and is 150 meters in length. Twenty inventory units along transect 2 and 22 inventory units along transect 1 contained cultural materials.

The distribution of debitage within the inventory transects allowed for the definition of at least three concentrations. Locus 1 is a small area along the eastern portion of transect 1. It is 20 meters in length, and all four inventory units contained debitage. Locus 2 covers 30 meters along the western leg of transect 1. All six inventory units at locus 2 contained cultural material. Locus 3, the largest of the concentration areas, lies in the central portion of the site and covers nearly

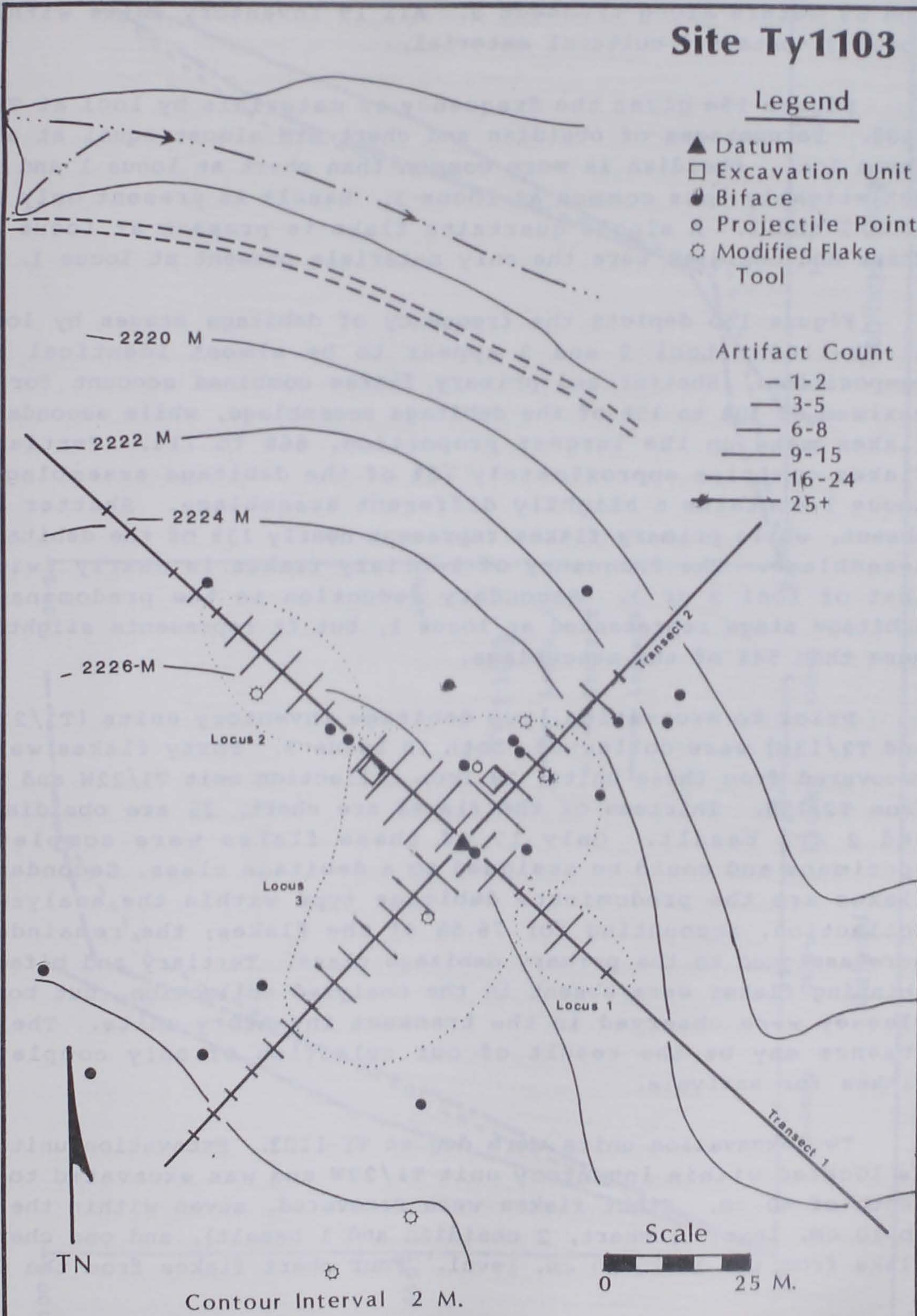

Figure 15. Site Map: TY1103

2500 square meters. It extends for 40 meters along transect 1, and 65 meters along transect 2. All 19 inventory units within locus 3 contained cultural material.

Figure 15a gives the frequency of materials by loci at TY-1103. Percentages of obsidian and chert are almost equal at all three loci. Obsidian is more common than chert at locus 1 and 2, but slightly less common at locus 3. Basalt is present only at loci 2 and 3. A single quartzite flake is present at locus 3. Chert and obsidian were the only materials present at locus 1.

Figure 15b depicts the frequency of debitage stages by loci at TY-1103. Loci 2 and 3 appear to be almost identical in composition. Shatter and primary flakes combined account for a maximum of 10% to 15% of the debitage assemblage, while secondary flakes make up the largest proportion, 66% to 71%. Tertiary flakes comprise approximately 18% of the debitage assemblage. Locus 1 contains a slightly different assemblage. Shatter is absent, while primary flakes represent nearly 13% of the debitage assemblage. The frequency of tertiary flakes is nearly twice that of loci 2 or 3. Secondary reduction is the predominate debitage stage represented at locus 1, but it represents slightly more than 54% of the assemblage.

Prior to excavation, two debitage inventory units (T1/22W and T2/13N) were collected, both in locus 3. Forty flakes were recovered from these units; 29 from collection unit T1/22W and 11 from T2/13N. Thirteen of the flakes are chert, 25 are obsidian, and 2 are basalt. Only 17 of these flakes were complete specimens and could be assigned to a debitage class. Secondary flakes are the predominate debitage type within the analyzed collection, accounting for 76.5% of the flakes; the remainder were assigned to the primary debitage class. Tertiary and biface thinning flakes were absent in the analyzed collection, but both classes were observed in the transect inventory units. Their absence may be the result of our selection of only complete flakes for analysis.

Two excavation units were dug at TY-1103. Excavation unit 1 is located within inventory unit T1/22W and was excavated to a depth of 40 cm. Eight flakes were recovered, seven within the 0 to 10 cm. level (3 chert, 2 obsidian and 1 basalt), and one chert flake from the 10 to 20 cm. level. Four chert flakes from the 0

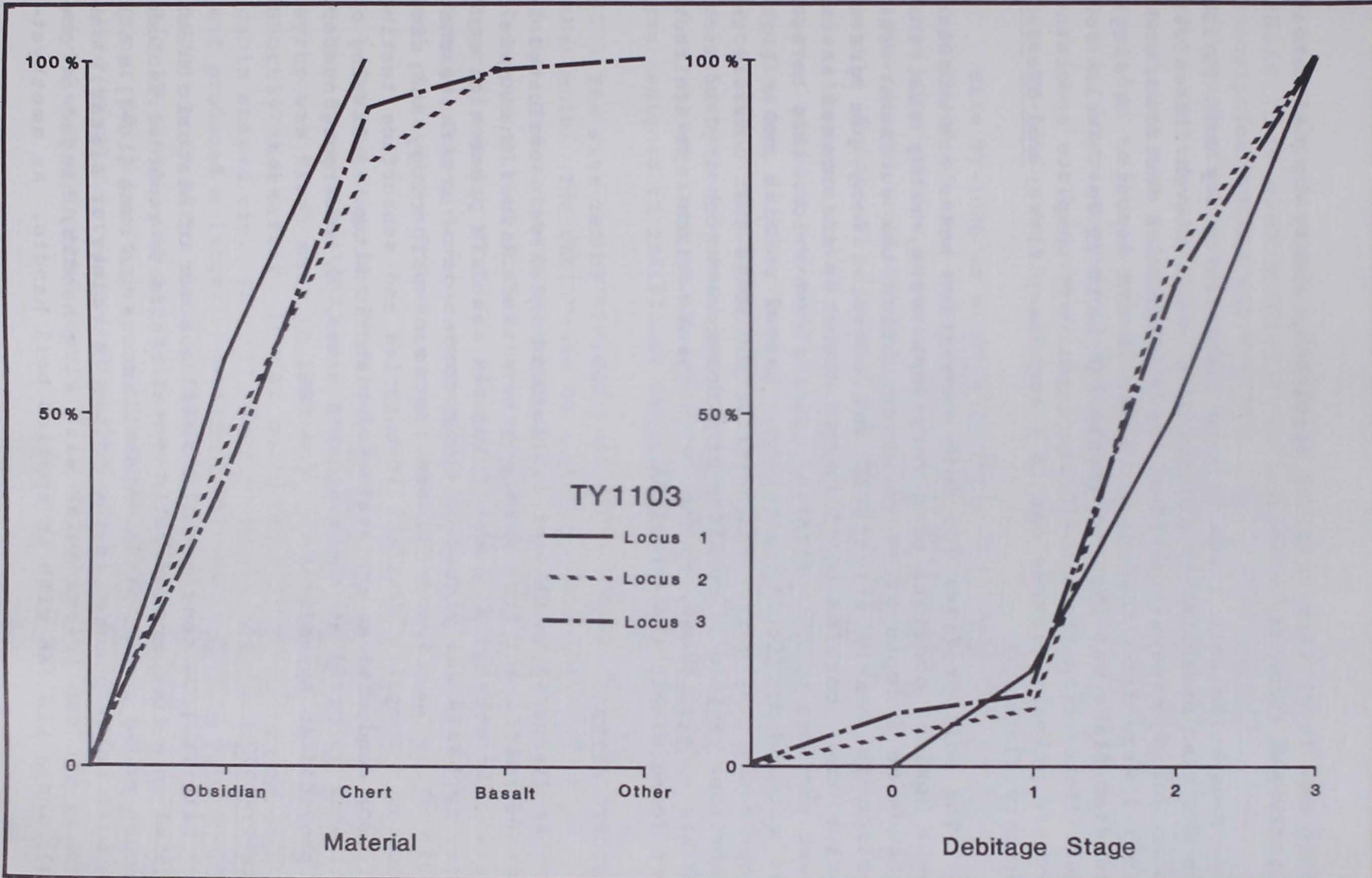

Figure 15a. TY1103 Debitage Distribution by Material Type

Figure 15b. TY1103 Debitage Distribution by Stage

to 10 cm. level were complete specimens, evenly divided between primary and secondary stages.

Excavation unit 2 was located within inventory unit T2/13N, and was also excavated to a depth of 40 cm. Eleven flakes were found during excavation; 10 of these (8 chert, 1 obsidian, and 1 basalt) were from the upper 10 cm. of the deposit. A single obsidian flake was located within the 10 to 20 cm. level. Four chert flakes from the 0 to 10 cm. level were complete specimens: two are primary flakes; one is a secondary flake; and one is a tertiary flake.

The soil profiles for both excavation units are similar. The A horizon consists of a very dark brown, sandy silt that extends to a depth of 18 to 20 cm. below the surface. This horizon is weakly structured and contains many pea gravel inclusions; cobbles to 15 cm. in diameter are common in the lower portions of this stratum. During excavation, this horizon was wet and difficult to screen. Larger cobbles and a light brown sandy clay matrix characterize the soils that underlie the A horizon. This unit consists of a decomposed rock or C horizon, and has an abrupt/wavy contact with the A horizon. No artifacts were found within the C horizon.

HISTORIC SITES

As discussed in Chapter 5, historic sites were evaluated in a manner different from prehistoric sites. Rather than make a systematic attempt at quantifying all the data present at each site, emphasis was placed on the recordation of artifacts that would allow us to address the issues of chronology and site function. Complete artifact inventories and subsurface testing were not conducted at the evaluated historic sites. A listing of artifacts recorded at the evaluated sites, by reference number, is provided in Appendix A.

Site TY-1077

Site TY-1077 consists of a small scatter of historic trash located on a tree covered hill. Metal artifacts recorded include a round-ended shovel blade, miscellaneous tin cans (10+), a tin can with holes punched in the bottom (strainer or sifter), one tobacco tin can (rectangular with wire handle, hinged at one end), and a tin can with an applied bail handle. An amethyst-

tinted two piece mold, machine made, whiskey bottle was also found, its neck missing. Present on the bottle was the inscription "TAYLOR AND WILLIAMS WHISKEY, LOUISVILLE, KY". Dates of manufacture for this bottle type and maker are from 1881 to 1910. In the mid-1860s, Thomas Taylor established an importing warehouse and sales office in San Francisco. His sales soon expanded to other parts of the west, including Virginia City, Nevada, where Taylor moved his headquarters in the 1870s.

Site TY-1086

Site TY-1086 is a cabin depression associated with a general assortment of cans and glass. Observation reveals, however, that this site offers more diversity in artifact content than other mine-related trash dumps in the area. Along with a wide range of bottle fragments, were food and spice tins, tobacco tins, miscellaneous metal (wire, barrel hoops, round nails, etc), a stove, buttons and overall studs, crown bottle caps, a pair of eyeglasses, leather fragments, plate glass, and numerous other artifacts. This cabin site was apparently inhabited over a relatively long period and represents a more complete household than other sites in the area. A total of 61 reference numbers was assigned to individual items or concentrations at this site.

The site can be divided into two general areas, the dump and the cabin. The cabin sits on a fairly flat area uphill from the dump. Present is a probable foundation with cut, shaped stones and some milled lumber. The foundation is small, consisting of approximately 15 large stones scattered between two juniper trees. The dimensions are approximately 10'x 6'. Round nails and plate glass fragments are scattered around the foundation.

At the dump, the most reoccurring types of tin cans were Log Cabin Syrup tins (28) and baking powder cans (9). Log Cabin syrup was first made in 1887 and distributed in 3.5" x 4" cans. Shortly thereafter, it was marketed in the once familiar log cabin shaped tin. In 1927, General Foods took over the company and produced a larger, "family-sized" tin measuring 5" x 5" (Rock 1978): both sizes were within the dump. Baking powder tins in 1/2 lb, 1 lb, and 2-1/2 lb sizes were observed. Tobacco tins occurred in two types: a rectangular "lunch box" style with a wire handle (produced from 1901-1925) and a round "canister" style with a knobbed top.

The predominant functional glass bottle type represented at this site was the beer bottle, a common artifact in most mine-related sites of this period. Present were 28 beer bottles, 13 whiskey bottles, 12 condiment bottles, 5 medicine bottles, 2 ink bottles, 2 Mason jars, and 5 wine bottles. The two beer manufacturers represented were A. B. Co. (American Bottle Company; 1905-1916), with bottles in amber and aqua and W. F. and S. Milwaukee (William Franzen and Sons; 1900-1929), with bottles in aqua, amber, and clear glass. Ceramics present at the site were restricted to only a few common types (white porcelain and white earthenware dishware).

A portion of the site has been disturbed by a roadcut and cultural material was spread along the edge of the road. It is likely that some other artifactual remains have been covered over by the berm.

Site TY-1087

Site TY-1087 consists of a probable cabin depression with a very sparse tin can scatter in association. Cabin dimensions are approximately 5' x 10'. Some chert and obsidian flakes from the prehistoric period are scattered around the depression. The tin scatter consists of three tobacco tins, five all purpose tins, a sardine can, and a condensed milk can (condensed milk was not produced until 1885). Also present is a small stove top. The entire trash dump is approximately 15' in diameter. Two burned posts with what appear to have been some type of latch (twisted wire which tie the two together) were also found at this site.

Site TY-1091

Site TY-1091 is an approximately 30' diameter dump associated with a very small (4' x 4') structure made from split logs and some milled lumber fragments (Figure 16). Rocks are piled around the base of the exterior. The structure is approximately 4' in height with a 2' x 3' opening. Dirt covered oil can tops were used as roofing material; oil cans were also used as insulation on one corner of the cabin and a stovepipe protrudes through the roof in another corner. A windbreak was built in a tree to the south of the structure. The structure is somewhat enigmatic: while it gives every appearance of being a cabin, its dimensions prompt a certain amount of reflection on

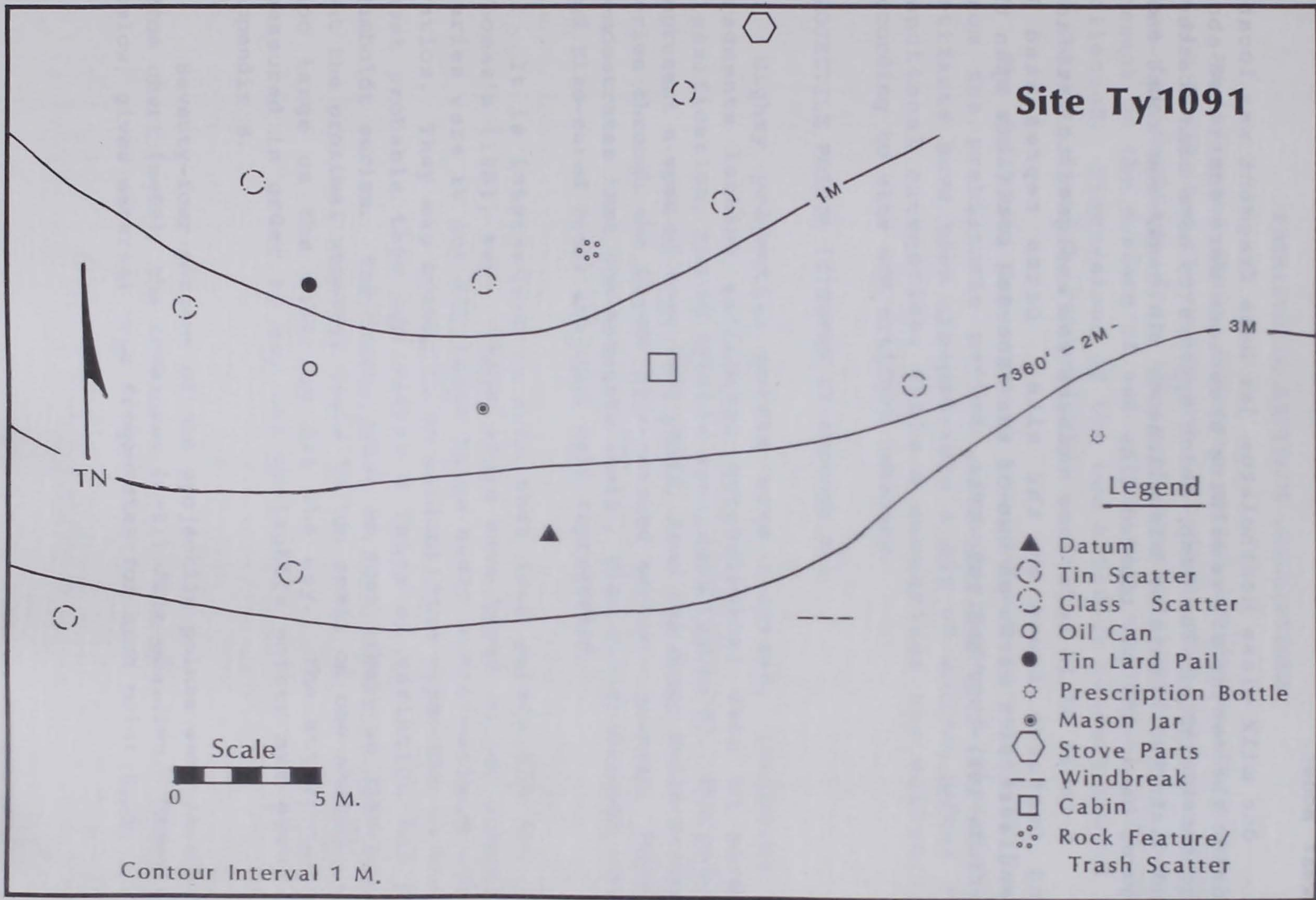

Figure 16. Site Map: TY1091

the size of its occupants. Perhaps the structure served as a sweat house.

One milk glass Mentholatum jar base fragment was located inside the cabin; all remaining artifacts were scattered about the outside area. The dump, which appears to have been scattered and disturbed, contains miscellaneous tin cans, one round-ended shovel head, and one tobacco tin.

A total of 16 reference numbers was assigned to artifacts and features found at the site. Dates represented by manufacturer's marks on two of the recorded artifacts span the periods 1911-1929 and 1920-1964.

Chapter 8

PREHISTORIC ARTIFACT DESCRIPTIONS

As indicated above, historic period artifacts were recorded in the field, but they were not collected. The same is largely true for debitage from the prehistoric period: only pieces present on the surface of and within test excavation units were collected. Discussions of the two artifact classes appear in in Chapters 6 and 7, respectively.

The following descriptions are confined to collected items from the prehistoric period. For purposes of discussion, artifacts have been grouped into a mix of morphological and functional categories: Table 8 summarizes the collection according to site and artifact category.

PROJECTILE POINTS (Figures 17 through 21)

Eighty projectile points were recorded, including 30 fragments lacking sufficient morphological data to permit classification, and 50 typable specimens (Table 9). The points represent a span of some 7000 years, from the Great Basin Stemmed series through the Desert Side-notched series. However, Table 9 demonstrates that the Rosegate (n=11), Elko Corner-notched (n=9), and Elko-eared (n=8) are most well represented.

It is interesting to note that four points did not fit Thomas's (1981) key. Three would have keyed to the Humboldt series were it not for their large basal width/maximum width ratios. They may belong to an unidentified type, but it seems most probable they are within a range of variation for the Humboldt series. The fourth point is most likely an Elko-eared, but the proximal shoulder angle is too small on one shoulder and too large on the other to fit the key. The attributes we measured in order to key the projectile points are given in Appendix B.

Seventy-four percent of the projectile points were fashioned from chert (n=59); the remainder (n=21) from obsidian. Table 10, below, gives material type frequencies for each point type.

Table 8. Artifact Classification

Site No.	Proj. Point	Bifaces I	II	III	Unidentified	Flake Tools	Drill	Haft Element	Hammerstone	Groundstone	Ornament	Bone	Core	Total
1072	1*													1
1074	1*													1
1075	10		6		2	1				3		1		23
1077	9		2	1	1	2				1				16
1078	1													1
1081													1*	1
1084	1*													1
1085	2			1	1	1								5
1086	3					1				1	1	1		7
1087	18	1	5	6	2	2			1	3	1			39
1088	11	2	7	7	2				1	6				36
1089	1				1*		1							3
1090	6									1				7
1091	1													1
1092	2													2
1095	1*				1*									2
1098	1													1
1100	1													1
1101	2			1										3
1103	6		5	2	3	14		3						33
1104	2													2
Total	80	3	25	18	13	21	1	3	2	15	2	2	1	186

* Not collected

Table 9. Distribution of Projectile Points by Site.

Projectile Point Series	1072	1074	1075	1077	1078	1084	1085	1086	1087	1088	1089	1090	1091	1092	1095	1098	1100	1101	1103	1104	Total
	Site Number																				
Great Basin Stemmed											1										1
Humboldt				1				1	1			1							1		5
Gatecliff									2	1									1		4
Elko Eared				2					2								1		2	1	8
Elko Corner-notched			1				1		3	2						1				1	9
Large Side-notched				1	1				1				1					1			5
Rosegate			3	1				1		2		2		2							11
Cottonwood Triangular			1																		1
Desert Side-notched			1						1												2
Unkeyed				1					1									1	1		4
Unident. Frags.	1	1	4	3		1	1	1	7	6		3			1				1		30
Total	1	1	10	9	1	1	2	3	18	11	1	6	1	2	1	1	1	2	6	2	80

Table 10. Projectile Point Material Type Frequencies.

Point Type	Chert	Obsidian	Total
Desert Side-notched	1	1	2
Cottonwood Triangular	1		1
Rosegate	9	2	11
Large Side-notched	2	2	4
Elko Corner-notched	7	2	9
Elko Eared	5	3	8
Gatecliff	3	1	4
Humboldt Series	5		5
Great Basin Stemmed	1		1
Unkeyed	3	1	4
Unidentifiable	22	9	31
	59	21	80
	74%	26%	

HAFT ELEMENTS (Figure 22)

Three items, all from Site TY-1103, are identified as haft elements. All are obsidian and each has ground lateral edges. Specimens 1103-21-1 and 1103-15-1 exhibit collateral flake patterns on both surfaces. Specimen 1103-12-2 has collateral flaking on one surface, but the other finished surface was removed by a large, probably incidental, flake. The three could be the stems from Great Basin Stemmed points, or haft elements from some other stemmed artifacts such as knives. Too little of the shoulder element remains to make this determination.

DRILL (Figure 23)

One chert drill was collected (1089-1-2): the tip is missing but the base and most of the shaft are present. The original flake surface of both the dorsal and ventral faces are evident; both surfaces of the tool have irregular flake patterns and many scars end in hinge fractures. The artifact is thin, lenticular in cross section, and irregular in plan view. The irregularity is a function of the breakage and re-shaping of one shoulder of the haft element.

BIFACES (Figures 24 through 26)

There were 59 bifaces collected, none of which is complete. Besides the three stages of biface reduction defined above, a fourth category was added to our classification scheme; bifaces not assignable to the stage reduction sequence because of insufficient data or uncharacteristic attributes. Biface reduction stage assignments are given, site by site, in Table 11 below.

Table 11. Biface Distribution. *

Site Number	Stage I	Stage II	Stage III	Unidentifiable	Total
TY-1075		6/1		2	8/1
TY-1077		2	1/1	1	4/1
TY-1085			1	1	2/0
TY-1087	1	5	6/2	2	14/2
TY-1088	2	7	7/1	2	18/1
TY-1089**				1	1/0
TY-1095**				1	1/0
TY-1101			1		1/0
TY-1103		5/1	2	3	10/1
	3	25/2	18/4	13	59/6

* total number of bifaces/number utilized

** not collected

In the conduct of edge wear analysis, distinguishing between edge nibbling resulting from edge use and the very similar, but deliberately ground (for platform preparation), edge is sometimes a judgemental call. Six bifaces in the collection appear to have been utilized; edge damage does not appear deliberate.

Chert, obsidian, and basalt are represented in the biface assemblage as indicated in Table 12 below.

Table 12. Biface Material Type Frequencies.

Reduction Stage	Chert	Obsidian	Basalt	Total
Stage I	3			3
Stage II	19	5	1	25
Stage III	12	5	1	18
Unidentifiable	9	4		13
	43	14	2	59

FLAKE TOOLS

Flake tools are defined as flakes which have been locally modified along one or more lateral edge, or which exhibit edge damage attributable to utilization. The 21 flake tools collected from the project area have been divided into three subgroups based on inferred function: scrapers, cutting tools, and unidentified modified flakes. Thirteen flake tools (73%) were made of chert, six (24%) from obsidian, and two (3%) from basalt.

Scraping Tools (Figure 27)

Each of the eight items in this category has been modified to produce steep edges: Table 13 gives their Production Angles (PA) and Damage Angles (DA). The Production Angle is the intersection between the surfaces that create the gross edge or projection section, and the Damage Angle is the intersection of the surfaces immediately adjacent to the facial juncture.

These data illustrate that the PA varies considerably, but the DA is much more consistent. This suggests that the PA is not as critical in the manufacture of scrapers and is probably more related to blank shape than to function. The DA, however, is more uniform and, because it is related to tool function, suggests that all these tools served a similar purpose.

Table 13. Scraping Tool Production and Damage Angles.

Specimen No.	PA (degrees)	DA (degrees)
1077-28-1	59	87
1103-4-1	64	89
1103-5-1	52	indeterminate
1103-13-1	40	78
1103-14-1	70	79
1103-16-1	59	74
1103-18-1	78	87
1103-24-2	64	83

Mean Production Angle = 61 Standard deviation = 11
Mean Damage Angle = 82 Standard deviation = 5

<u>Cutting Tools</u> (Figure 28)

All seven flakes classified as cutting tools have at least one lateral edge modified to produce a crush-resistant cutting edge. Specimens 1103-7-1 and 1103-20-1 are citrus flakes (wedge-shaped in cross section) modified at both ends and along lateral edges. Specimen 1103-17-1 is a seemingly multipurpose tool, modified to produce a cutting edge and spoke-shave. Specimen 1086-2-4 is a small flake tool fragment which has had extensive edge modification. Specimens 1077-37-1, 1087-8-1, and 1103-26-2 are thin flakes each modified along one edge.

<u>Unidentified Modified Flakes</u> (Figure 29)

This class includes six flake tools which could not be functionally identified. Two, 1075-8-1 and 1087-16-1, are triangular, plano-convex flakes with modification along their lateral edges. Specimens 1103-6-1, 1103-24-1, and 1103-26-3 had small areas along one lateral edge modified. Specimen 1086-1-10 is a large, chunky flake with a portion of a steep face modified.

DEBITAGE

Debitage present on the surface of and within test excavation units were collected during site evaluation, resulting in a sample of 746 flakes. A majority of the pieces are of chert

with obsidian and basalt making up the remainder of the collection (Table 14).

Table 14. Debitage Material Types Present at Evaluated Sites.

Site	Chert	Obsidian	Basalt	Total
TY-1075	107	24	6	137
TY-1077	6		1	7
TY-1085	16	4		20
TY-1086	69	5	2	76
TY-1087	404	4	1	409
TY-1088	28	4		32
TY-1092		5		5
TY-1103	26	30	4	60
	656	76	14	746

One-third of the pieces (n=249) are complete enough to allow analysis, and the majority are secondary flakes. In spite of this dominance, data contained in Table 15 suggest that each material type presents a somewhat distinct pattern. Primary and biface thinning flakes are the most heavily represented within the chert category. The obsidian debitage assemblage is composed almost entirely of secondary and tertiary flakes. The small basalt sample is clearly dominated by early stage pieces. These data suggest that chert and basalt are the most local of the three sources.

Table 15. Debitage Material Type by Reduction Stage Comparison.

Reduction Stage	Material Type Chert	Obsidian	Basalt	Total
Primary	35	2	2	39
Secondary	134	16	4	154
Tertiary	20	4		24
Biface Thinning	31	1		32
	220	23	6	249

GROUNDSTONE

Fifteen pieces of groundstone were recorded in the project area, including metates, manos, one pestle, and several fragments obviously ground but not readily identifiable as to implement type.

The most noteworthy of the groundstone artifacts is the pestle fragment (Specimen 1077-2-1). This artifact, although broken, is oblong in outline and triangular in cross-section. The distal end exhibits evidence of extensive polish, and parallel stria are visible. Slight polish also extends along two edges of the angular pestle. Purposeful modification of the implement is not apparent, and the extensive polish indicates that it may have been used with a wooden mortar. Wooden mortars are reported ethnographically by Steward (1941) and Stewart (1941).

HAMMERSTONE (Figures 30 and 31)

Two basalt hammerstones were recorded. Both are fist sized, angular chunks with the scars characteristic of heavy battering at their corners. Specimen 1088-24-1 shows signs of being altered on one edge to produce a chopper.

PENDANTS (Figure 32)

There are two incised stone artifacts in the collection. Specimen 1087-50-1 is a complete pendant carved from steatite: a biconical hole is drilled through one end and a groove carved on one face. Specimen 1086-1-1 appears to be a fragment of a thin oval pendant shaped from a piece of schist. These specimens appear to be items of personal adornment, based on their morphology and on the exotic nature of the materials used in their manufacture.

BONE

Two small unidentifiable bone fragments, one of which has been burned, were collected from the surface of sites TY-1075 and TY-1086.

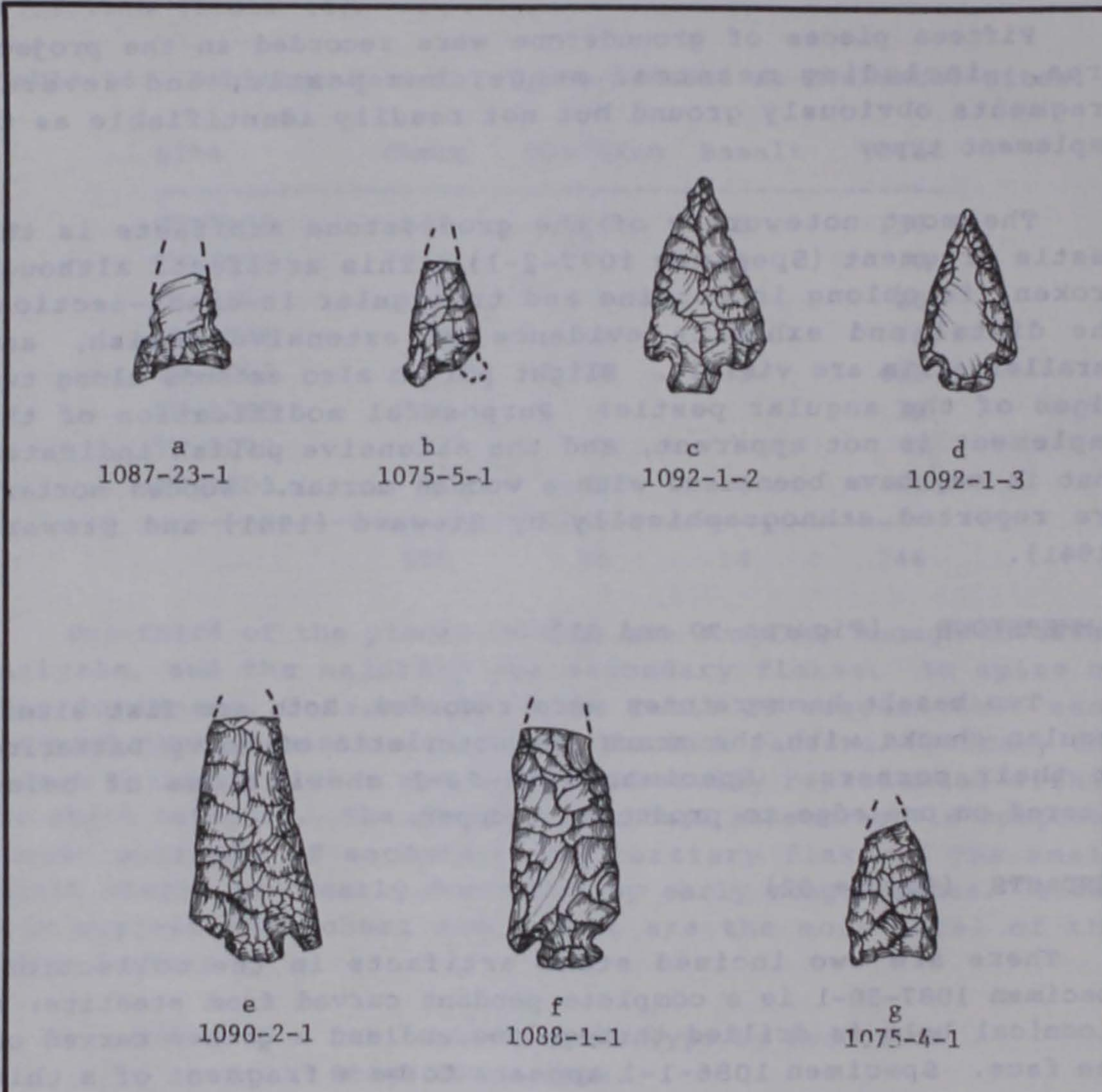

Figure 17. Projectile Points (a-b, Desert Side-notched; c-f, Rosegate; g, Cottonwood Triangular)

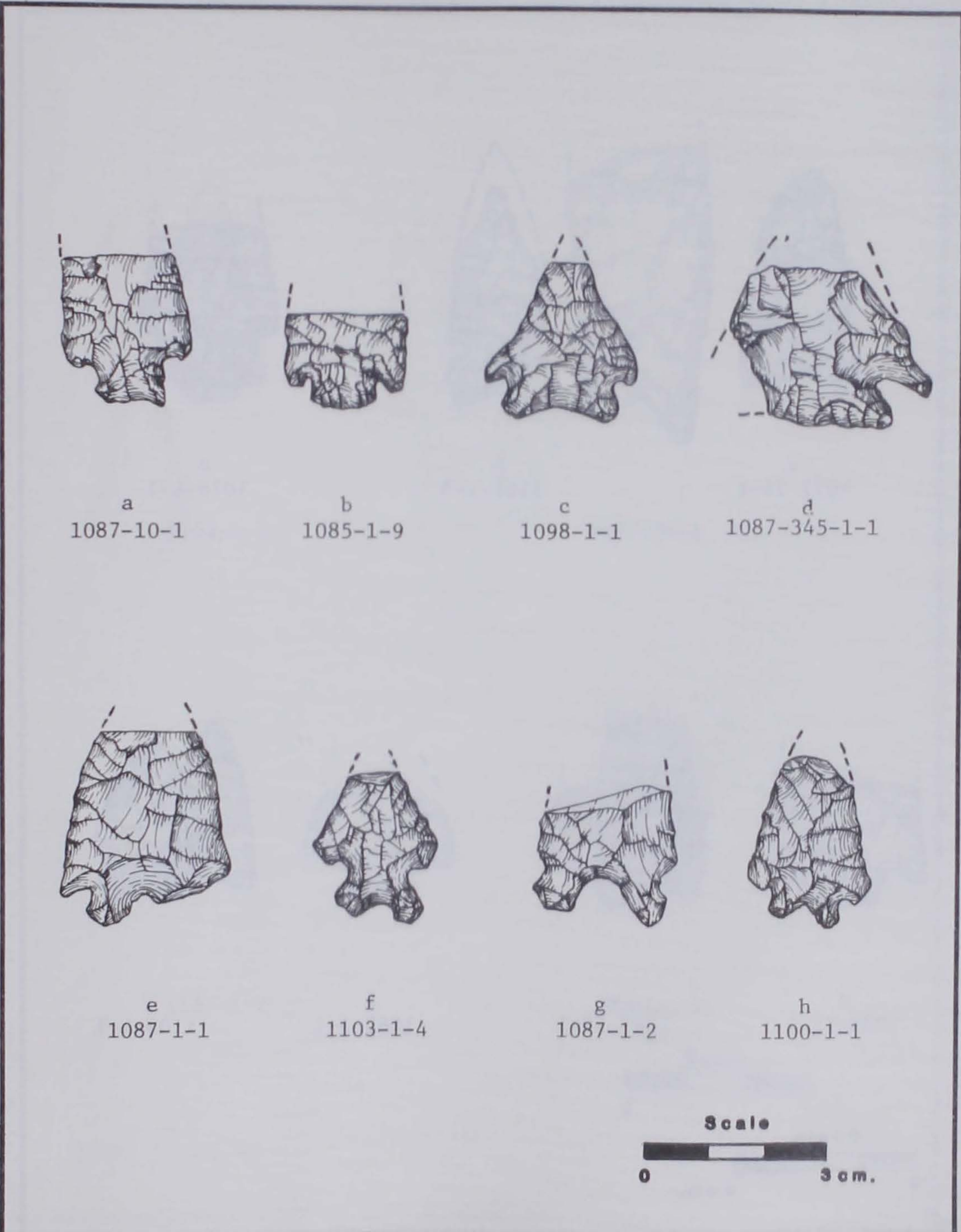

Figure 18. Projectile Points (a-d, Elko Corner-notched; e-h, Elko Earred)

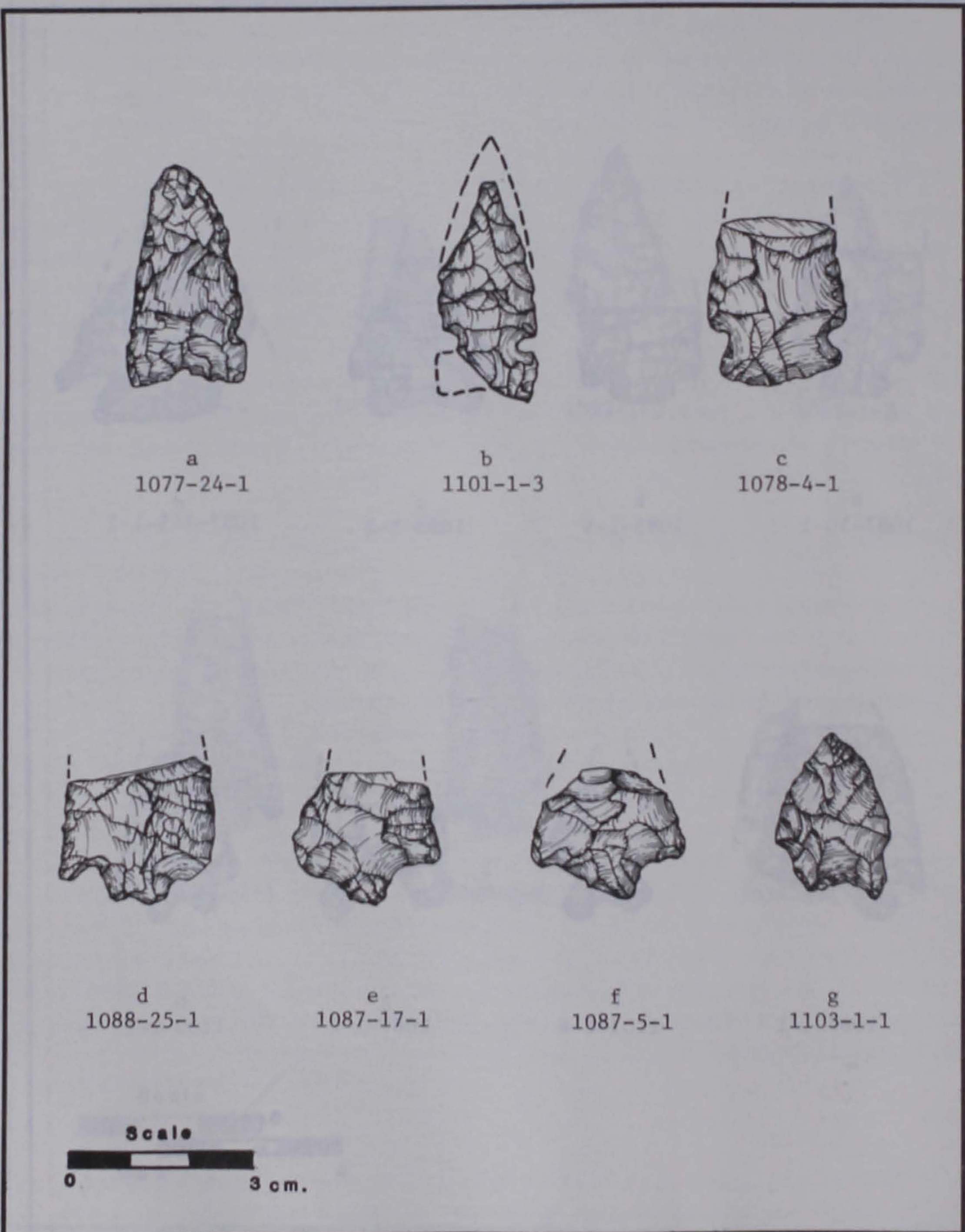

Figure 19. Projectile Points (a-c, Large Side-notched; d-g, Gatecliff)

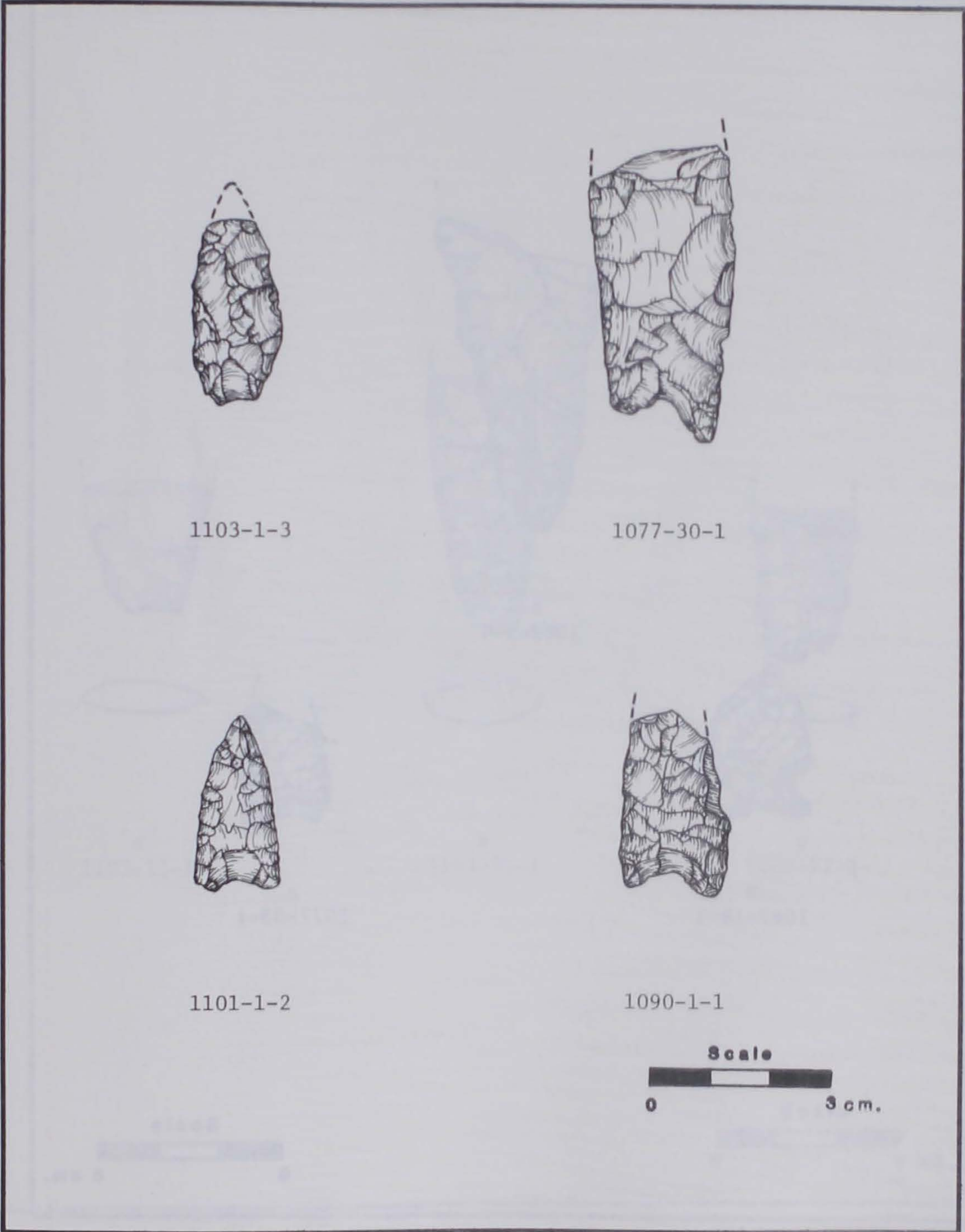

Figure 20. Projectile Points (Humboldt Series)

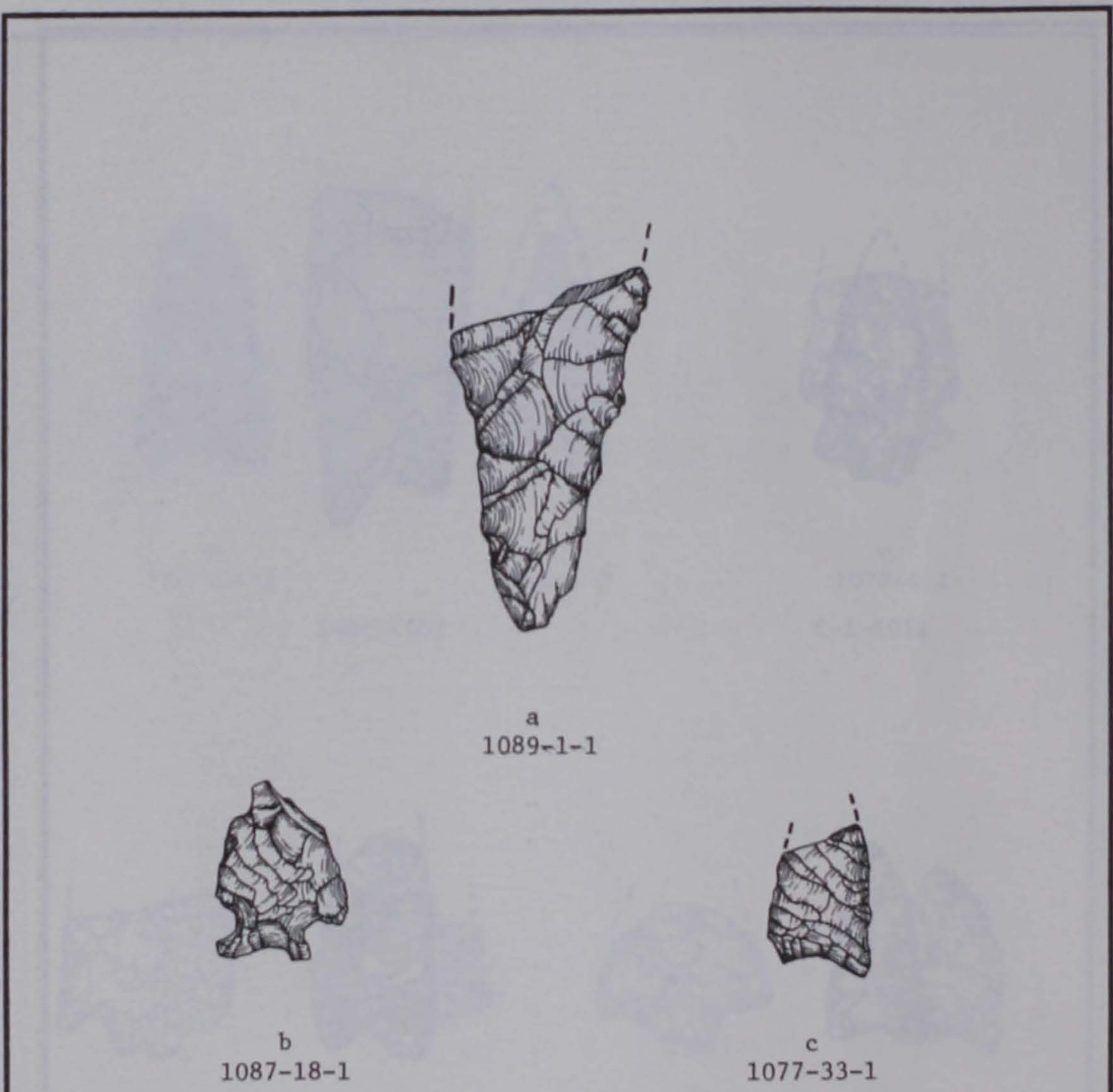

Figure 21. Projectile Points (a, Great Basin Stemmed; b-c, Untypable)

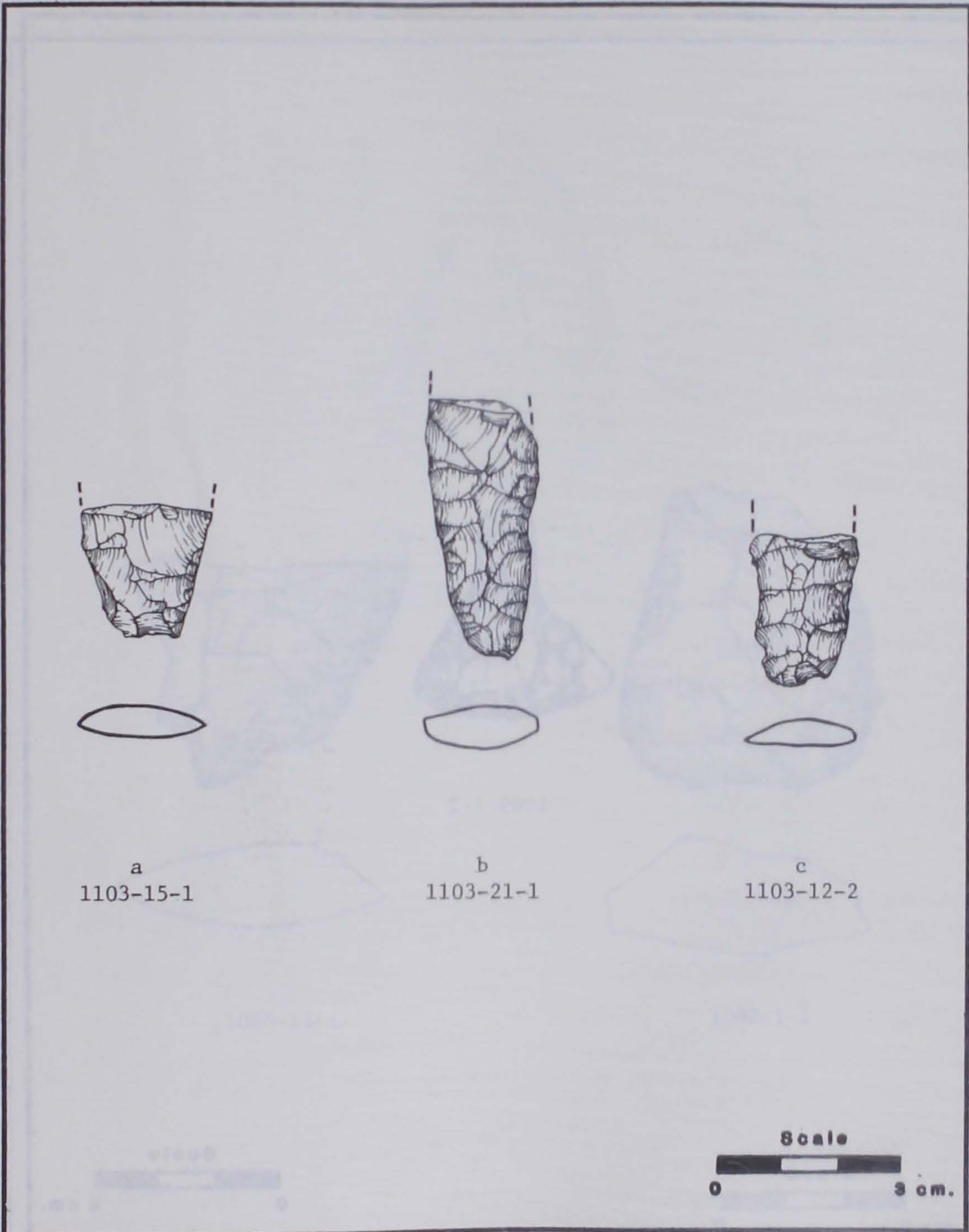

Figure 22. Haft Elements

1089-1-2

Scale

0 3 cm.

Figure 23. Drill

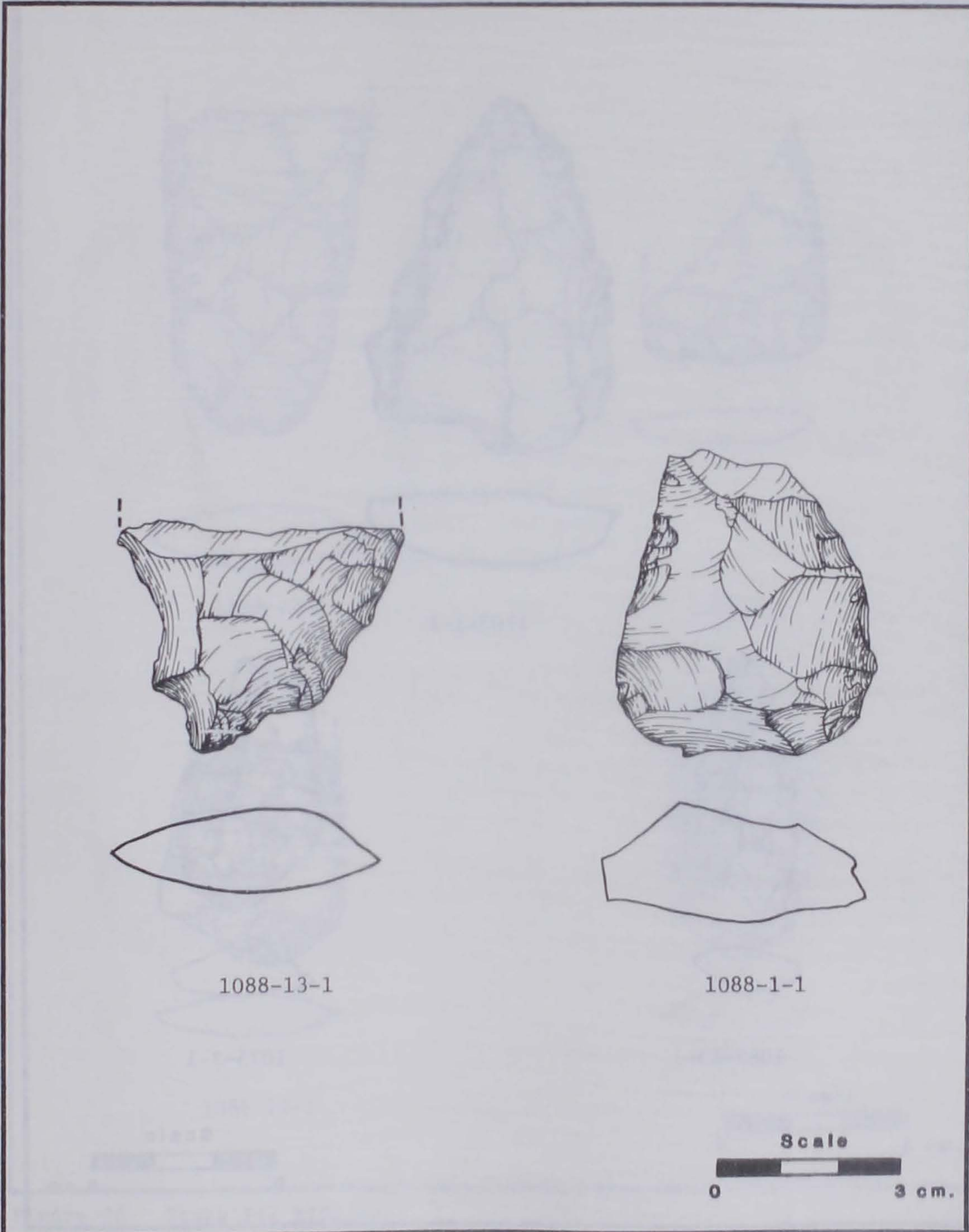

Figure 24. Stage I Bifaces

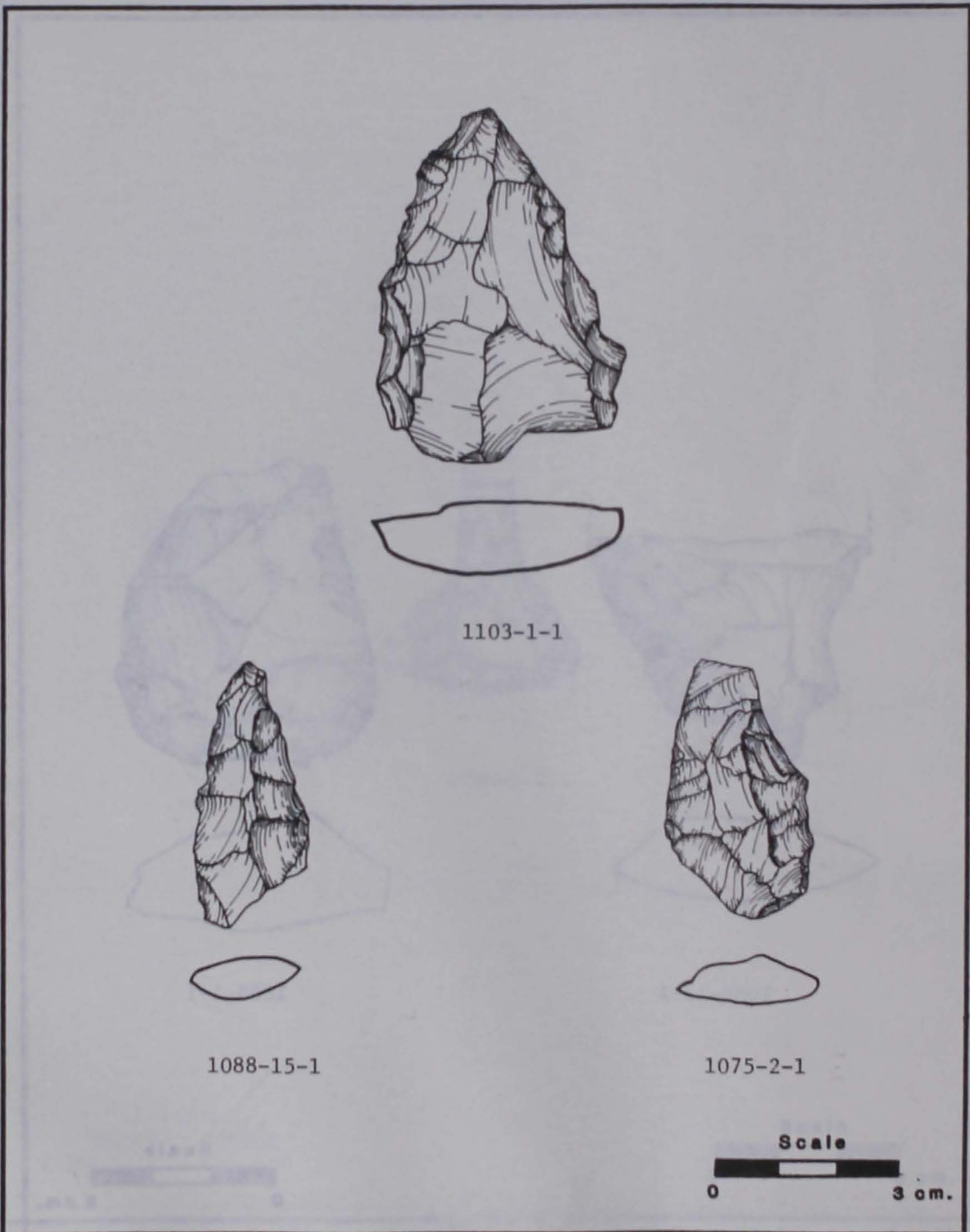

Figure 25. Stage II Bifaces

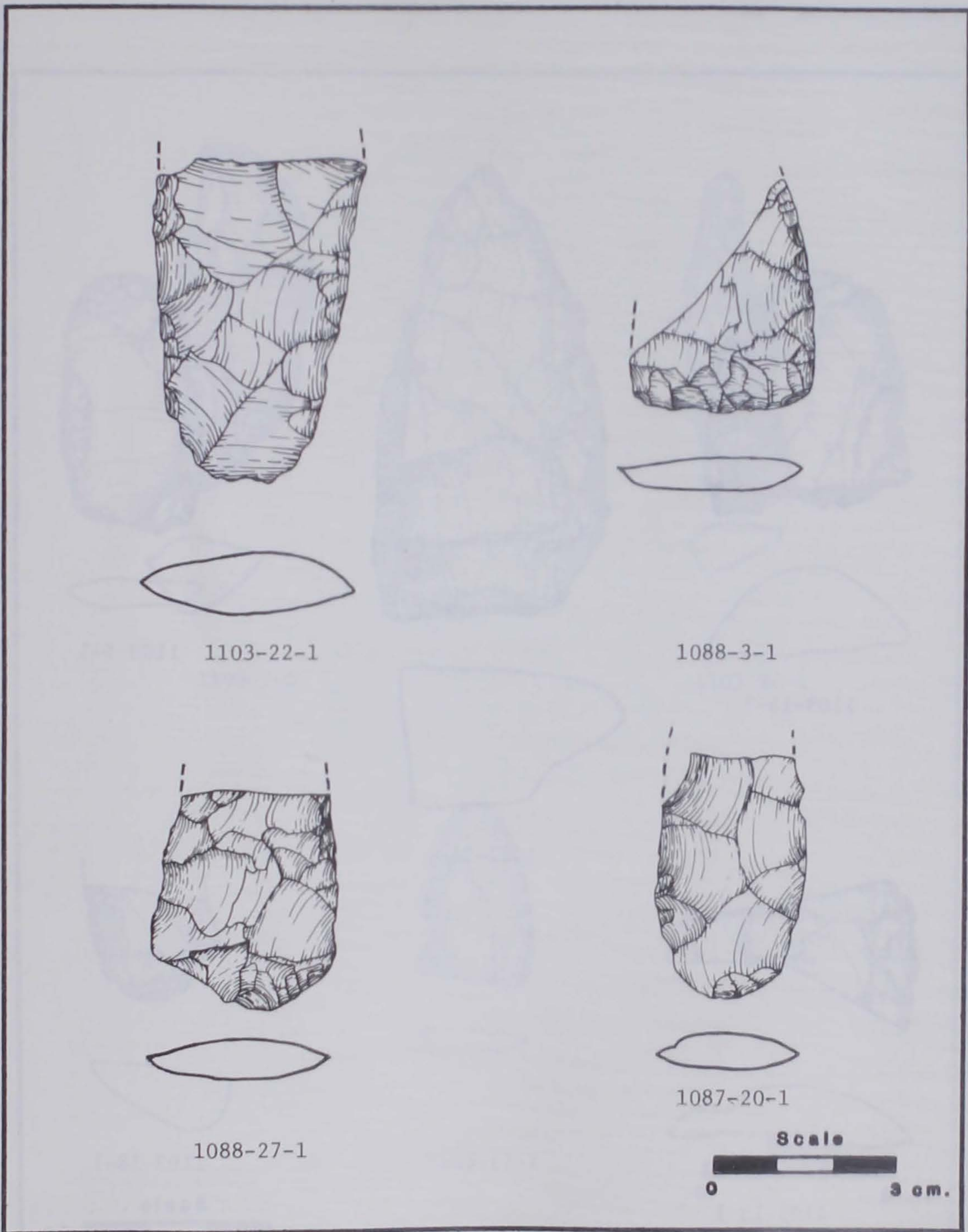

Figure 26. Stage III Bifaces

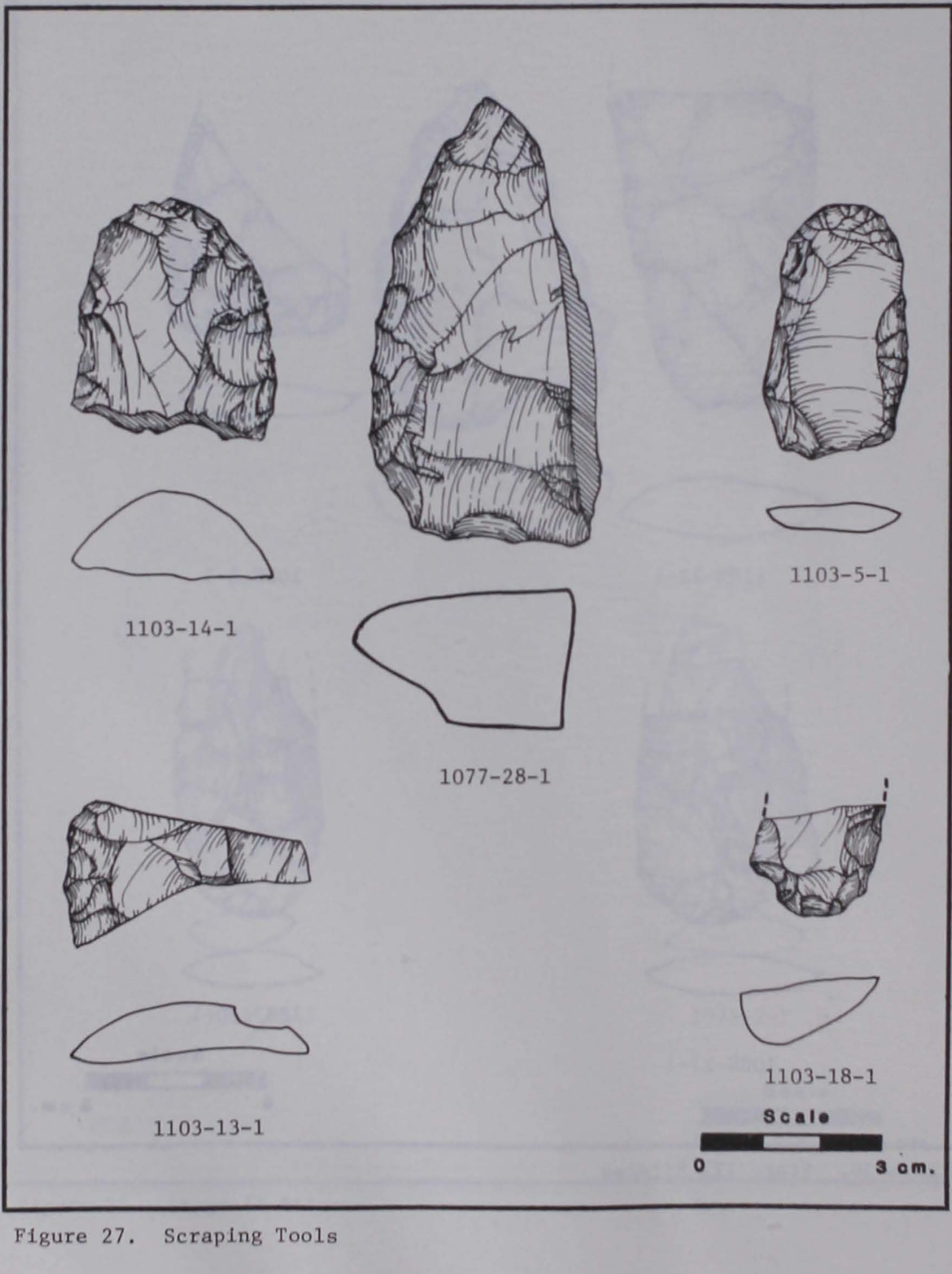

Figure 27. Scraping Tools

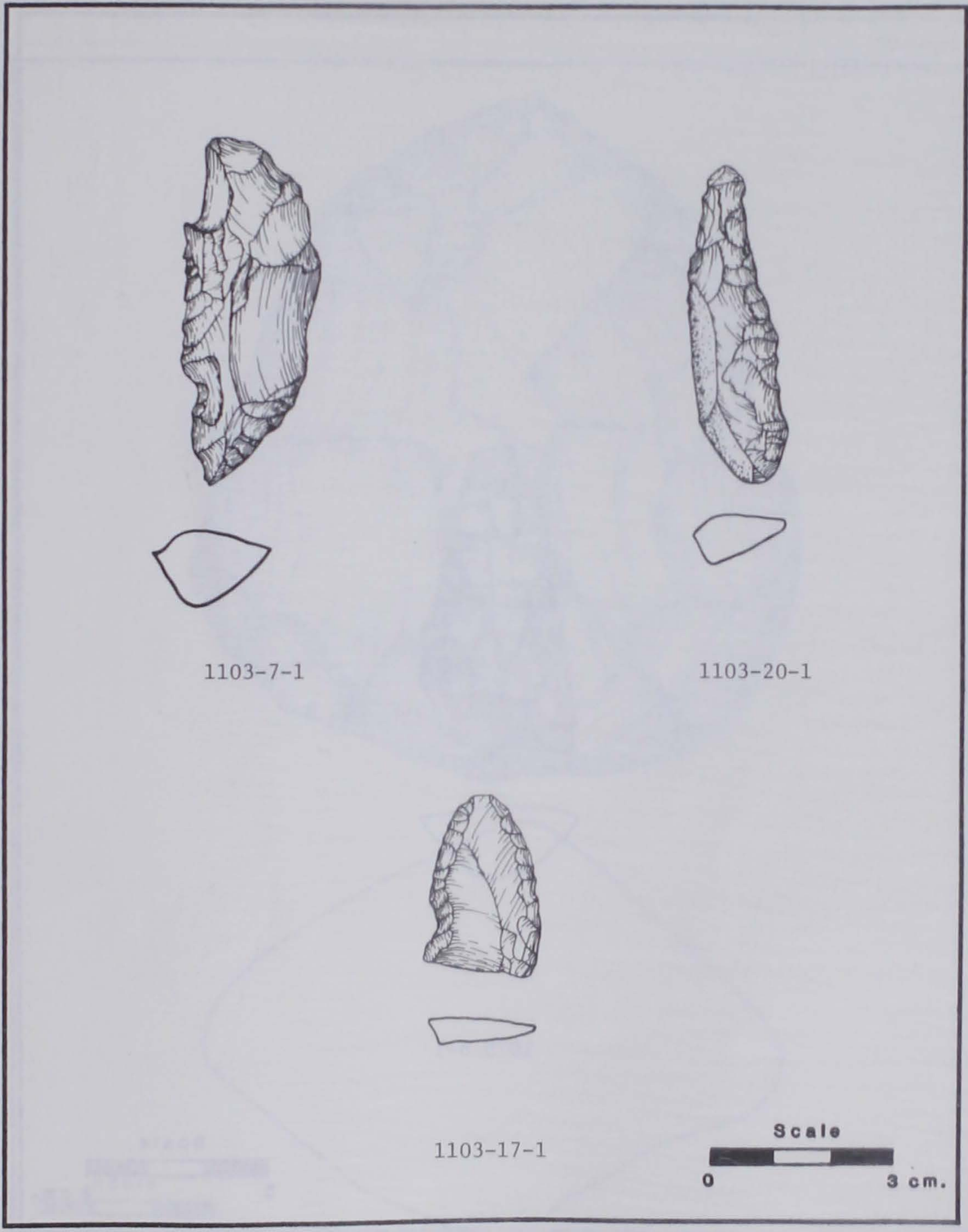

Figure 28. Cutting Tools

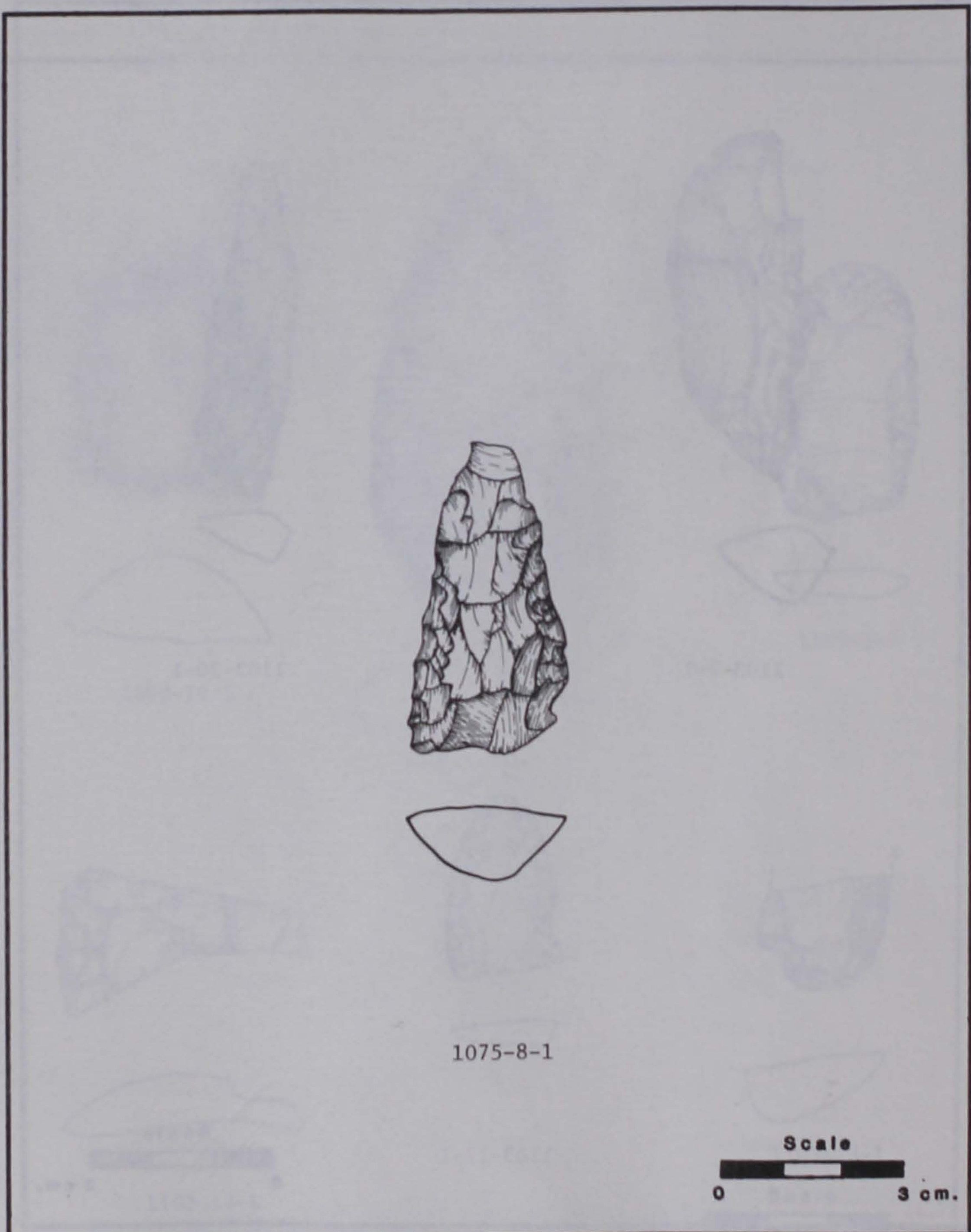

Figure 29. Unidentified Flake Tool

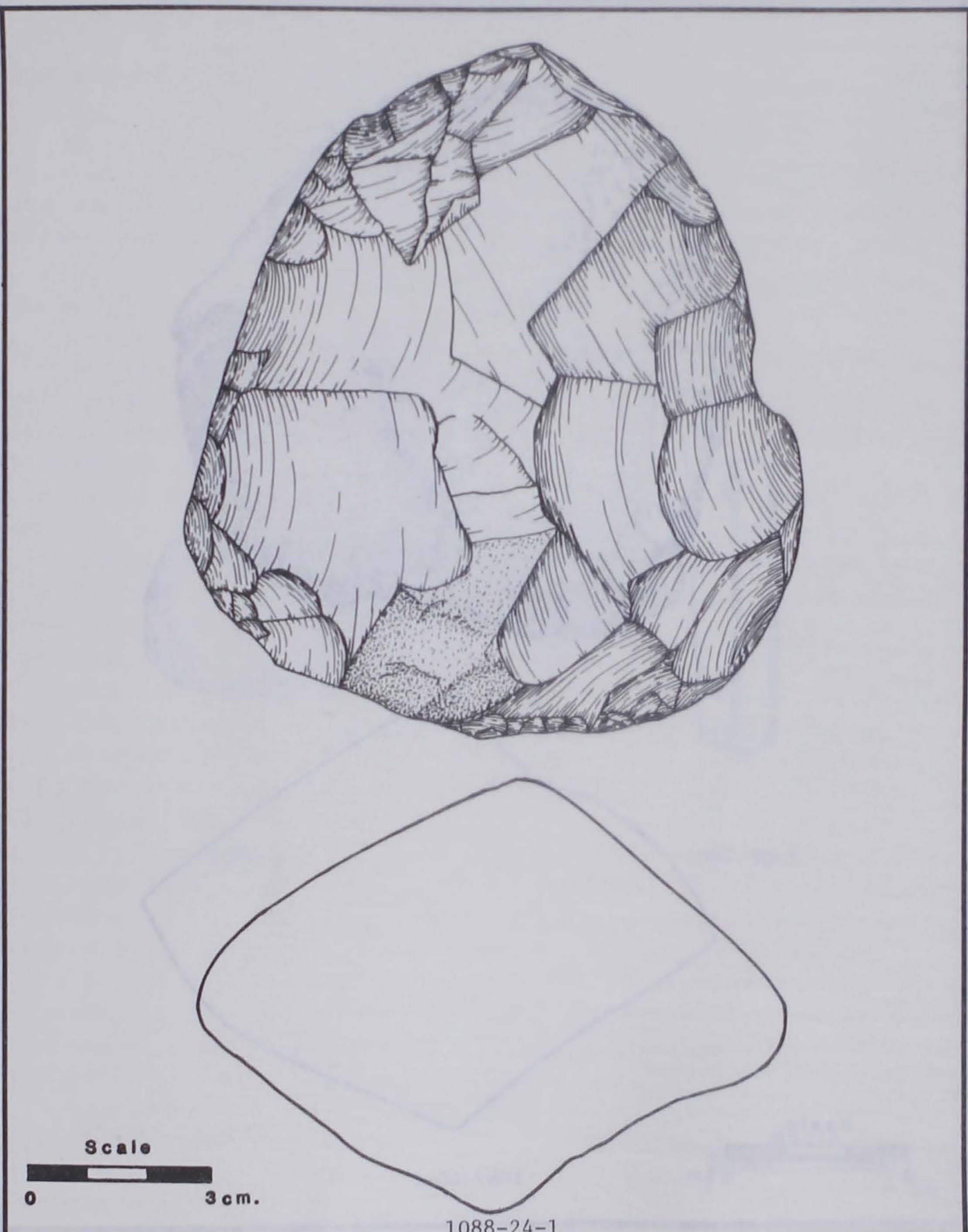

Figure 30. Hammerstone

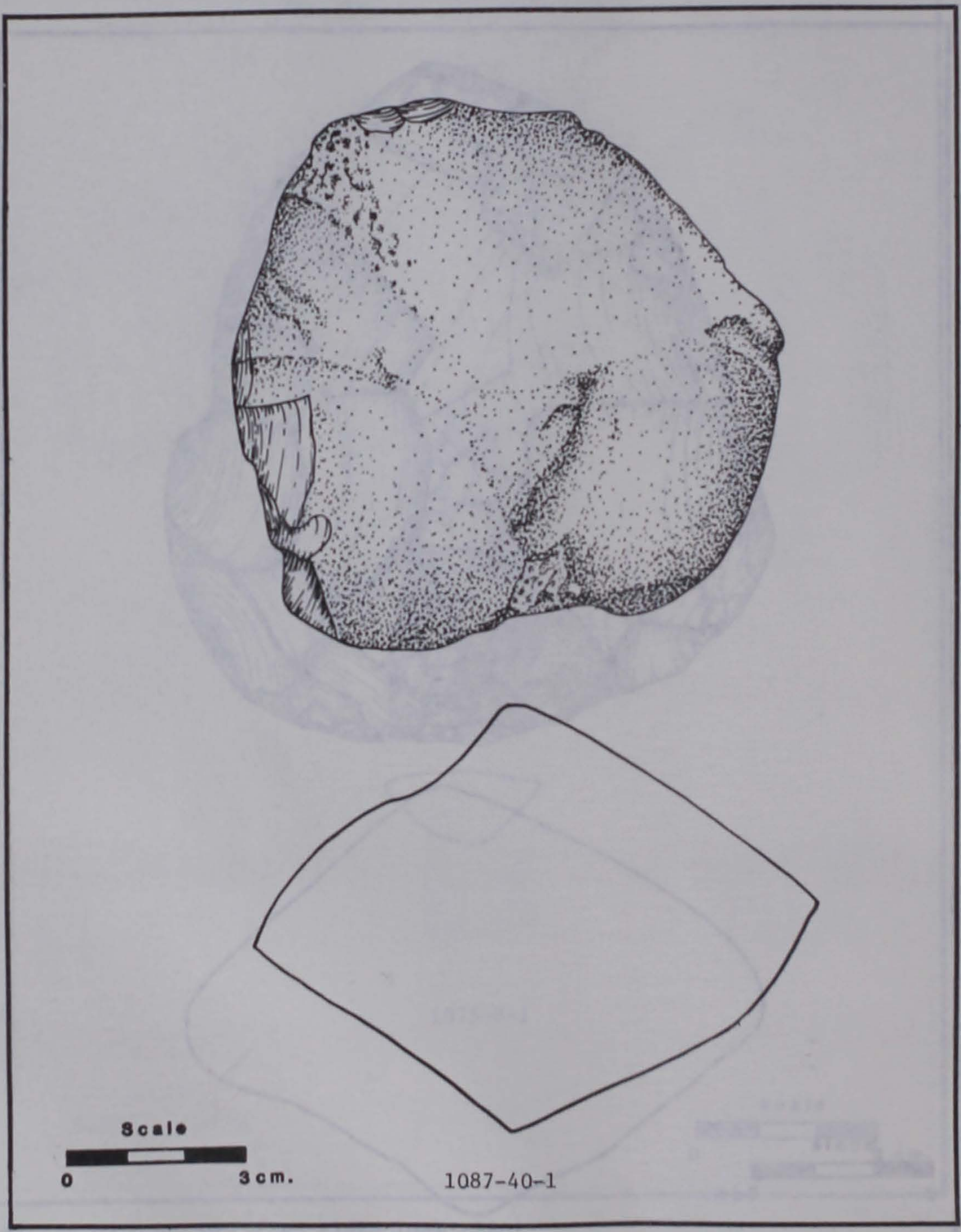

Figure 31, Hammerstone

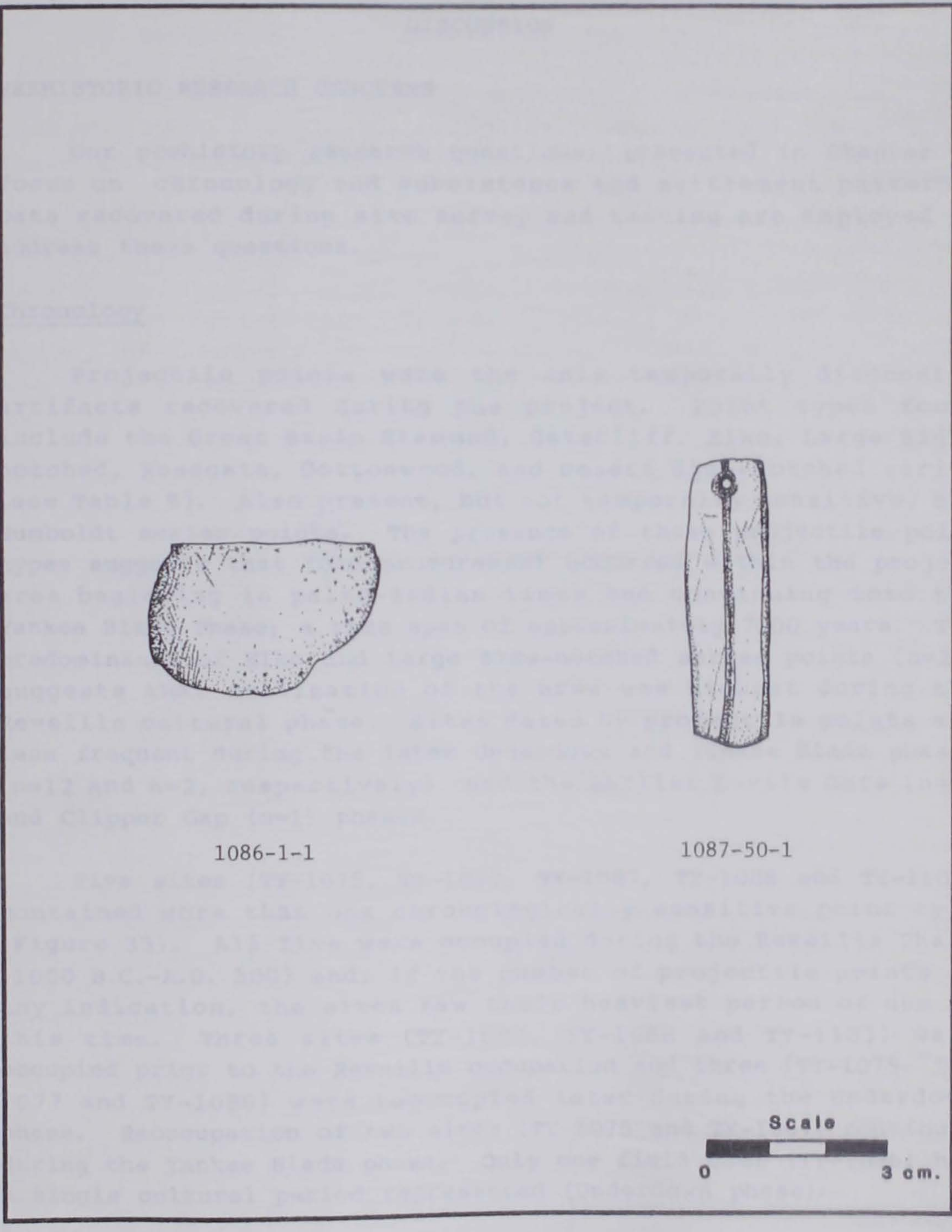

Figure 32. Pendants

Chapter 9

DISCUSSION

PREHISTORIC RESEARCH CONCERNS

Our prehistory research questions, presented in Chapter 4, focus on chronology and subsistence and settlement patterns. Data recovered during site survey and testing are employed to address these questions.

Chronology

Projectile points were the only temporally diagnostic artifacts recovered during the project. Point types found include the Great Basin Stemmed, Gatecliff, Elko, Large Side-notched, Rosegate, Cottonwood, and Desert Side-notched series (see Table 9). Also present, but not temporally sensitive, are Humboldt series points. The presence of these projectile point types suggests that food procurement occurred within the project area beginning in paleo-Indian times and continuing into the Yankee Blade Phase; a time span of approximately 7000 years. The predominance of Elko and Large Side-notched series points (n=22) suggests that utilization of the area was highest during the Reveille cultural phase. Sites dated by projectile points are less frequent during the later Underdown and Yankee Blade phases (n=12 and n=2, respectively) and the earlier Devils Gate (n=4) and Clipper Gap (n=1) phases.

Five sites (TY-1075, TY-1077, TY-1087, TY-1088 and TY-1103) contained more than one chronologically sensitive point type (Figure 33). All five were occupied during the Reveille Phase (1000 B.C.-A.D. 500) and, if the number of projectile points is any indication, the sites saw their heaviest period of use at this time. Three sites (TY-1087, TY-1088 and TY-1103) were occupied prior to the Reveille occupation and three (TY-1075, TY-1077 and TY-1088) were reoccupied later during the Underdown phase. Reoccupation of two sites (TY-1075 and TY-1087) continued during the Yankee Blade phase. Only one field camp (TY-1086) had a single cultural period represented (Underdown phase).

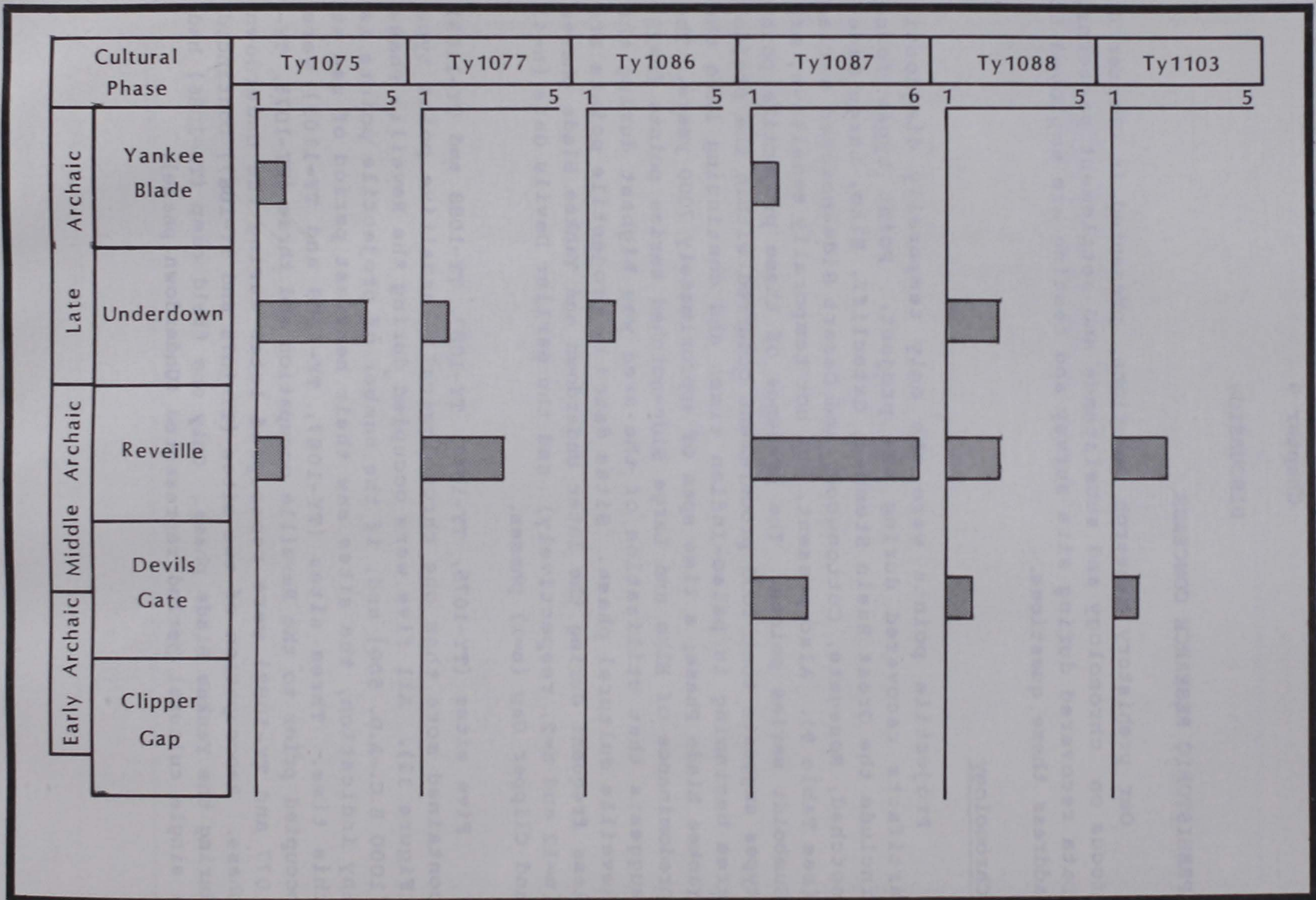

Figure 33. Projectile Point Frequencies and Periods of Occupation at Field Camps

Subsistence and Settlement

Our investigation of subsistence and settlement patterns in the project area depends on site type assignments. Tool assemblages at each site were examined, and the site was then assigned to a functional site type. Thirty four prehistoric sites are classified as locations, six as field camps (Table 16).

Generally, the artifact assemblage at locations is limited to tools functionally related to game procurement and processing tasks. Both intrasite and intersite variability are low. Two locations, TY-1089 and TY-1090, exhibit a broader range of activities, however. Evidence of tool fabrication (a chert core) was found at TY-1089 and plant processing equipment (groundstone) was encountered at TY-1090. Nevertheless, artifact frequencies at both sites are low, and limited functional variability suggests that they may be palimpsests of locations rather than a field camp.

The six field camps identified within the project area exhibit more functional variability than the other site types (Figure 34). When compared, however, the assemblages at these field camps are quite similar in composition: food procurement and processing tools represent the highest proportion of functional artifacts within each assemblage, and domestic equipment is present at most of the sites. Fabricating equipment at TY-1087 and TY-1088 is represented by hammerstones. TY-1103 is the only field camp that does not contain domestic equipment in its assemblage. A major portion of the site's assemblage, however, consists of highly curated general utility tools (bifaces and flake tools), indicating that repeated butchering may have taken place at the site (highly curated forms are used until their edges are exhausted, then they are discarded).

Thomas (1983) suggests the debitage assemblage at field camps can be distinguished from that at residential bases by a high proportion of later stage reduction and resharpening flakes, and a low percentage of flakes representing the initial stages of the reduction sequence. Elston (1979) also distinguishes between the two site types based on material types present. At field camps, the locally available material type is more abundant, while at residential bases, a wider range and more even proportions of material types are evident.

Table 16. Site Types by Functional Artifact Class.

Site No.	Food Procurement	Domestic Equipment	Fabricating Equipment	General Utility	Site Type Designation
TY1072	X				Location
TY1073-1					Location
TY1073-2					Location
TY1073-3					Location
TY1073-4	X				Location
TY1073-5					Location
TY1073-6				X	Location
TY1073-7					Location
TY1074	X				Location
TY1075	X	X		X	Field Camp
TY1076					Location
TY1077	X	X		X	Field Camp
TY1078-2					Location
TY1078-3				X	Location
TY1078-4				X	Location
TY1078-5					Location
TY1078-6					Location
TY1079					Location
TY1080-1					Location
TY1081			X		Location
TY1082					Location
TY1084	X				Location
TY1085	X			X	Location
TY1086	X	X		X	Field Camp
TY1087	X	X	X	X	Field Camp
TY1088	X	X	X	X	Field Camp
TY1089	X		X	X	Location
TY1090	X	X			Location
TY1092	X				Location
TY1094					Location
TY1095	X			X	Location
TY1096					Location
TY1097					Location
TY1098-1	X				Location
TY1099					Location
TY1100	X				Location
TY1101	X			X	Location
TY1102					Location
TY1103	X			X	Field Camp
TY1104	X				Location

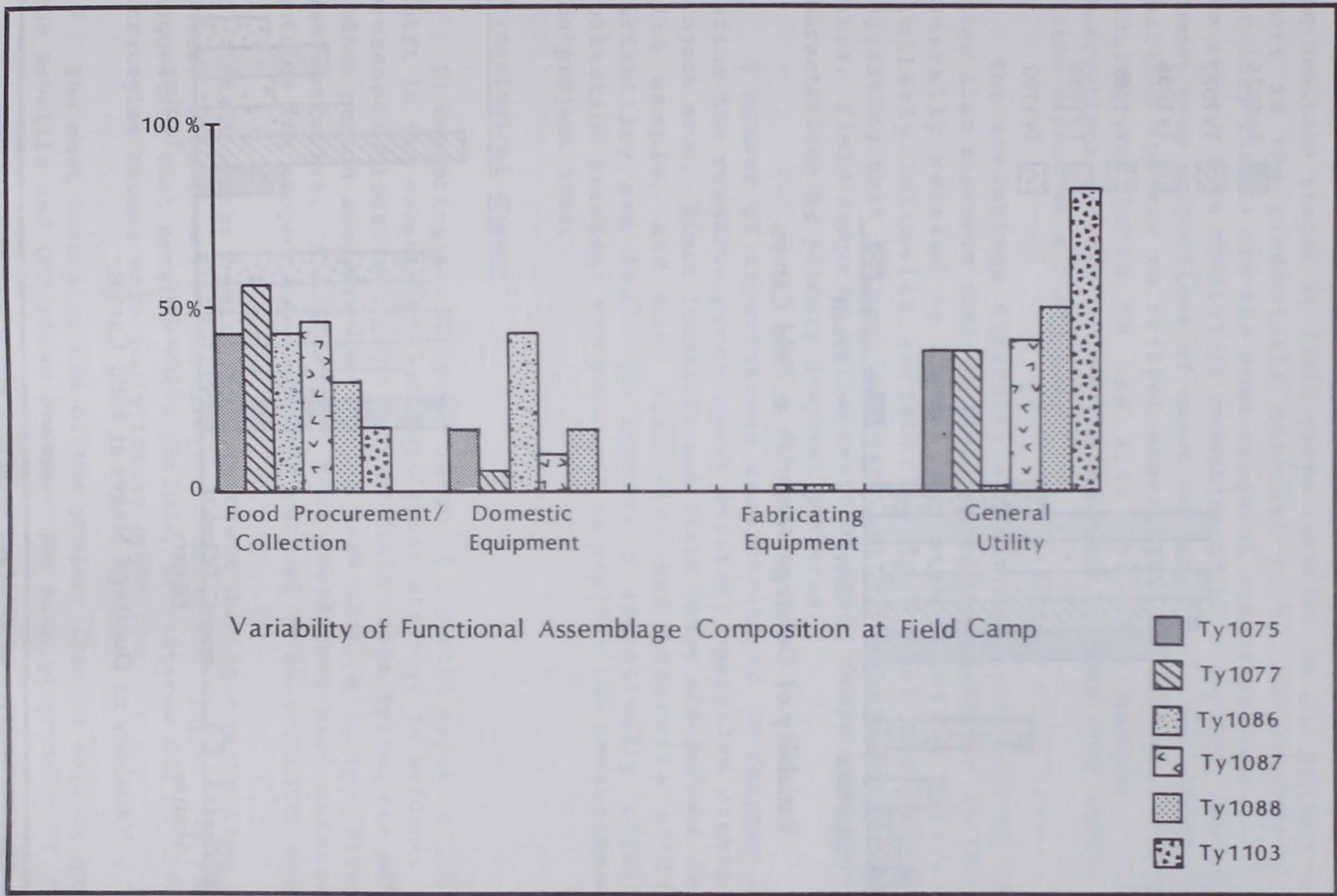

Figure 34. Variability of Functional Assemblage Composition at Field Camps

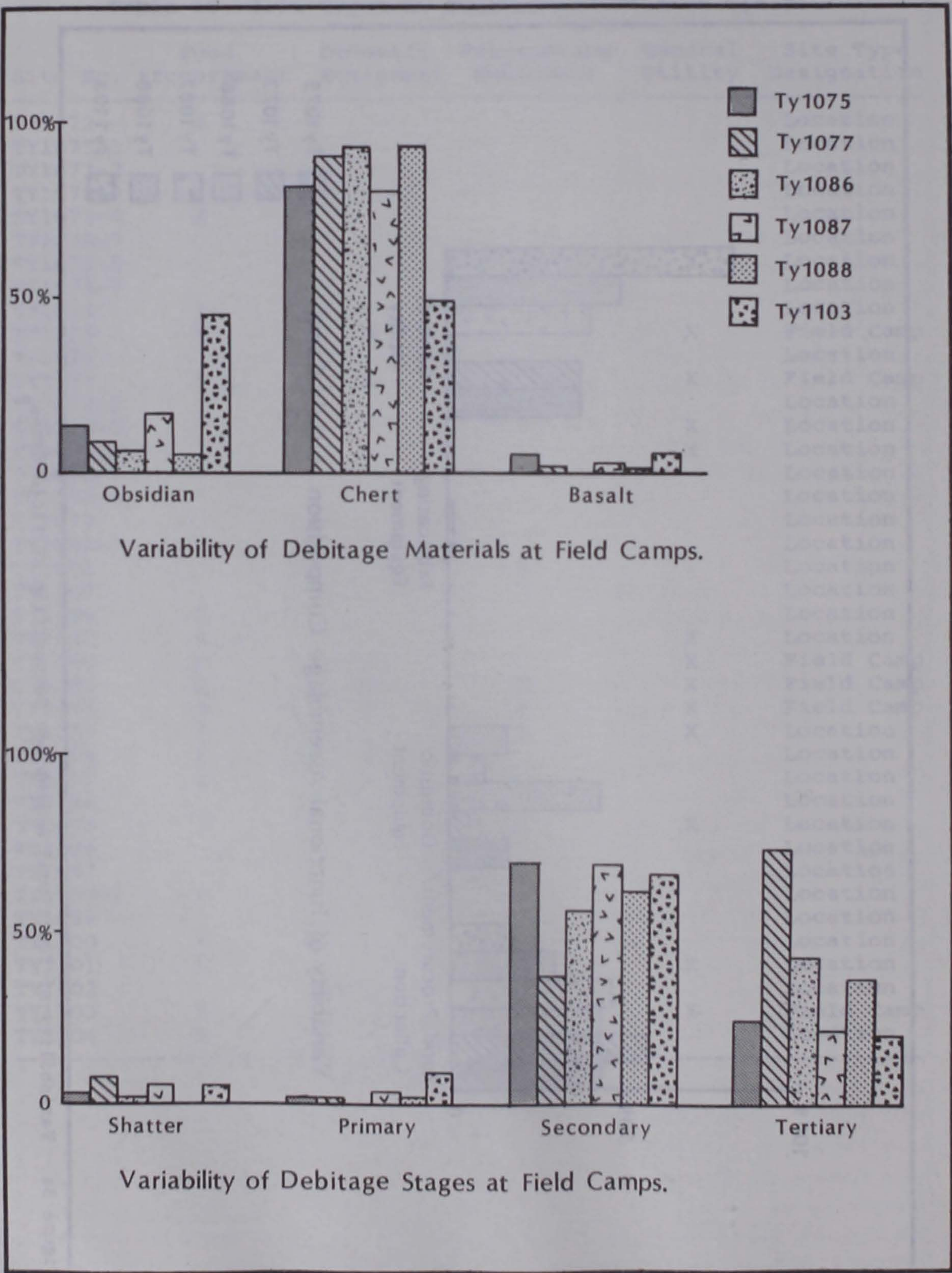

Figure 35. Variability of Debitage Materials and Stages at Field Camps

Figure 35 gives the variability of debitage material types and debitage stages at field camps recorded in the project area. Chert is the predominate material type, and secondary and tertiary flakes are the most frequent stages present at all of the sites. Site TY-1103 is something of an exception, containing almost even proportions of chert and obsidian. The abundance of obsidian appears to reflect aboriginal use of small obsidian nodules available on the site for tool making. These observations closely follow the debitage pattern both Thomas and Elston expect at a field camp.

The assemblage diversity and disposal patterns at these sites also resemble that of field camps. Variability is low and generally related to intersite, task specific nature. A similarly intrasite variability is almost non-existent, suggesting that primary disposal patterns characterize these sites. Field camps or palimpsests of field camps are commonly characterized by primary disposal patterns.

A number of expectations were developed in Chapter 4 to define the resource procurement strategy operative within the project area. Since locations and field camps are present in our site sample, and both intrasite and intersite artifact variability are low, it appears a logistically organized collection strategy was employed to exploit the environment of the project area.

Chronological Change

In comparing the temporal range of the site types, a gradual shift in the subsistence and settlement strategy is evident. The presence of locations and a lack of field camps during the paleo-Indian period suggests that during this time, a forager strategy was operative. A residential base could have been maintained outside the project area and game pursued on an encounter basis.

Field camps begin to be apparent during the Devil's Gate Phase. They do not occur, however, during the Clipper Gap Phase, suggesting that between these periods, subsistence and settlement strategies became more logistically organized.

The most intensive use of the project area is evident during the Reveille and Underdown Phases. The high proportion of field

camps and locations utilized during these periods shows that the collection strategy was well entrenched. It should also be noted that most of the field camps in the project area were re-used over a 4000 year period. The long term re-use of sites coincides with a logistically organized strategy. This is especially true since the area has abundant critical resources and site positioning does not appear to be an important factor in site location.

It is interesting to note that during Middle Archaic times (Reveille Phase), field camps are located in a number of different settings: some in the pinyon-juniper woodlands, some in sage covered areas. During the Late Archaic (Underdown and Yankee Blade phases), however, field camps are located in the pinyon-juniper zone. While this observation tempts us to suggest a heavier reliance on pinyon during the Late Archaic, we will resist. The camps located in the sage are not that far from the present pinyon-sage ecotone; pinyon could have been procured easily from these sites. In addition, slight variations in the tree line elevation would have had an effect on the vegetation present at sites.

HISTORIC RESEARCH CONCERNS

History research questions posed in Chapter 4 are similar to those for the prehistoric period. They place an emphasis on when the area was colonized, how many resources were exploited, whether the pattern of resource use changed over time, and what types of activities are represented at the sites.

Chronological Assessment

Historic sites within the project area appear to have been occupied after the town of Ellsworth was abandoned, as evidenced by dates from the identifiable glass artifacts. While these dates exhibit a wide range of values, the majority fall within the early 1900s.

The date range can be refined based on a comparison of the manufacturer's dates, and consideration of the physical characteristics of the bottle glass (color, mold type, etc.). For example, there are very few amethyst glass fragments and an abundance of brown and clear glass. This strongly indicates a

late nineteenth and early twentieth century range of glass production. In addition, there are no beer cans or other more contemporary tins. The earliest possible date of habitation would be ca. 1890; the latest possible date, the mid- to late 1920s. This suggests that the area was initially occupied toward the end of the Early Period of colonization and possibly worked throughout the Middle Period of occupation.

Resource Exploitation

All the historic sites appear to be associated with the extraction of ore from small, individual resource areas. The optimal foraging theory presented by Hardesty and Hattori (1982) suggests that resource patches are exploited only as long as they provide yields higher than those found elsewhere in the frontier. It appears that mining activities in the project area were of limited intensity, and may have been ancillary to the exploitation of higher yield resources nearby, perhaps the re-working of the Ellsworth tailings.

The period in which the sites were occupied, and the nature of the resource exploitation, suggest the project area served, for a limited time, as an opportunistic area of exploitation following the decline of Ellsworth. As technologies and markets changed, specific portions of the frontiers were abandoned or reoccupied. Sites in the project area seem to suggest only one period of limited use, then they were abandoned. In a certain sense, that process of reoccupation is occurring at the present time.

Activities of the Occupants

The artifact record of the historic sites suggests that they were not occupied by family units, but by individuals. We found no evidence to suggest that women or children ever inhabited any of the sites. Site TY-1086 represents the most complete "household". Based on the glass inventory, however, the site simply appears to have been occupied for a longer period of time. The other smaller dumps seem to have been very temporary and/or seasonal.

When the artifacts from the historic sites are assigned to functional classes, a pattern of activity becomes evident (Tables 17 and 18). The highest proportion of artifacts can be assigned

Table 17. Glass Bottle Categories.

	TY-1086	TY-1091	TY-1077	TY-1087	Total
Beer	28	4			32
Whiskey	13	3	1		17
Medical	5	6			11
Condiment	12	8			20
Mason Jar	2	1			3
Wine	5	1			6
Ink	2				2
Miscellaneous	3	5			8
	70	28	1	0	99

Table 18. Metal Artifacts.

	TY-1086	TY-1091	TY-1077	TY-1087	Total
Baking Powder	9	1			10
Spice, etc.	7	5	1		13
Log Cabin	28				28
Tobacco	2	4	1	3	10
Oil	1				1
Coffee/Tea	8	2			10
Chocolate	4				4
Miscellaneous	3	7	1		11
	62	19	3	3	87

to the food preparation class: this includes condiments, baking powder, spices, syrup, coffee/tea, chocolate, and mason jars. Nearly half (47%) the artifacts fall into this category. Almost 35% of the artifacts fall into the recreational class. This category consists of tobacco tins and beer, whiskey, and wine bottles. Maintenance artifacts account for 18% of the assemblage. This class includes medicine and ink bottles, oil cans, and other miscellaneous artifacts.

Little can be said about the nature of mining technology employed in the area based on data observed at the recorded sites. Shovels are the most common tool found and shallow test

holes appear to be related to the historic occupation. This leads us to suspect that limited mineral exploration or placer mining is all that ever occurred. Technological change through time does not appear to have occurred or to have played a part in why the area was occupied. Most likely, it was an area that, after the abandonment of Ellsworth, could be economically exploited by single individuals working their own claims.

Chapter 10

SUMMARY AND CONCLUSIONS

NATIONAL REGISTER ELIGIBILITY

We evaluated 30 prehistoric and historic sites using the National Register rating criteria discussed in Chapter 5. Isolates were not subjected to the evaluation procedure. All 30 sites were evaluated in order to test the initial approach we used to identify sites that required further investigation and in order to identify the relative integrity and significance of different site types. In the discussion below, integrity and significance are presented separately in (Table 19), then combined to achieve an overall rating score (Figure 36). Overall ratings are used to determine National Register eligibility.

Integrity scores for the assessed sites range from 18 to 24 points, with a mean value of 19.4 and a standard deviation (s.d.) of 1.9. The most distinct cluster of scores is at 18, while another small peak is observed at 22. Since 18 is an average integrity score (3 points assigned to each of the six criteria) the integrity of sites in the project area is average or better.

Significance scores show a greater diversity, ranging from 9 to 19, with a mean of 12.5 (s.d. 3.7). Three clusters are evident within significance ratings. One, between 9 and 11, contains just over half the evaluated sites. Others are between 13 and 15 and from 18 to 20. Both the latter contain an equal number of cases (n=7). Like integrity scores, a value of 18 signifies average significance. Evaluation suggests that most sites are below average with regard to significance.

Total rating scores range from 27 to 43 with a mean value of 31.9 (s.d. 5.4). The scores cluster into three groups. Most of the sites fall within the 27 to 30 point range, well below an average score of 36. The remaining two groups are distributed evenly to either side of the average range; seven have values of 31 to 34 and seven range from 38 to 43.

The mean and standard deviation values for integrity, significance, and total rating scores were calculated for each functional site type and are presented in Table 20. In all

Table 19. National Register Evaluation Scores.

	INTEGRITY							SIGNIFICANCE							
Site No.	1	2	3	4	5	6	Sub-Total	1	2	3	4	5	6	Sub-Total	Total
TY-1071	5	4	3	2	2	3	19	3	3	1	2	2	2	13	32
TY-1072	5	4	2	3	2	2	18	2	1	1	2	2	2	10	28
TY-1074	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1075	5	4	4	3	4	3	23	4	3	3	3	3	3	19	42
TY-1076	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1077	5	4	3	3	3	3	21	3	3	3	3	3	2	17	38
TY-1079	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1081	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1082	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1083	5	4	2	3	2	3	19	3	2	2	3	3	2	15	34
TY-1084	5	4	2	3	2	2	18	2	2	1	2	2	2	11	29
TY-1085	5	4	2	3	2	3	19	2	2	1	2	2	2	11	30
TY-1086	5	4	4	3	3	3	22	3	3	2	3	3	3	17	39
TY-1087	5	4	4	3	3	3	22	3	3	2	3	3	3	17	39
TY-1088	5	4	4	3	4	3	23	4	3	3	3	3	3	19	42
TY-1089	5	4	2	2	2	3	18	4	3	2	2	2	2	15	33
TY-1090	5	4	2	2	2	3	18	3	3	2	2	2	2	14	32
TY-1091	5	4	3	4	4	4	24	3	3	4	3	3	3	19	43
TY-1092	5	4	2	3	2	4	20	1	1	1	2	2	2	9	29
TY-1093	5	4	3	3	3	3	21	2	2	3	2	2	2	13	34
TY-1094	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1095	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1096	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1097	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1099	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1100	5	4	2	3	2	2	18	1	1	1	2	2	2	9	27
TY-1101	5	4	2	3	3	3	20	3	2	2	2	2	2	13	33
TY-1102	5	4	2	3	2	2	18	2	2	1	2	2	2	11	29
TY-1103	5	4	3	3	4	3	22	4	3	3	3	3	3	19	41
TY-1104	5	4	3	2	2	3	19	3	2	2	2	2	2	13	32

INTEGRITY
1-Location
2-Setting
3-Design
4-Material/Workmanship
5-Feeling
6-Association

SIGNIFICANCE
1-Variety
2-Quantity
3-Separability
4-Research Potential
5-Interpretation
6-Local/Ethnic Concern

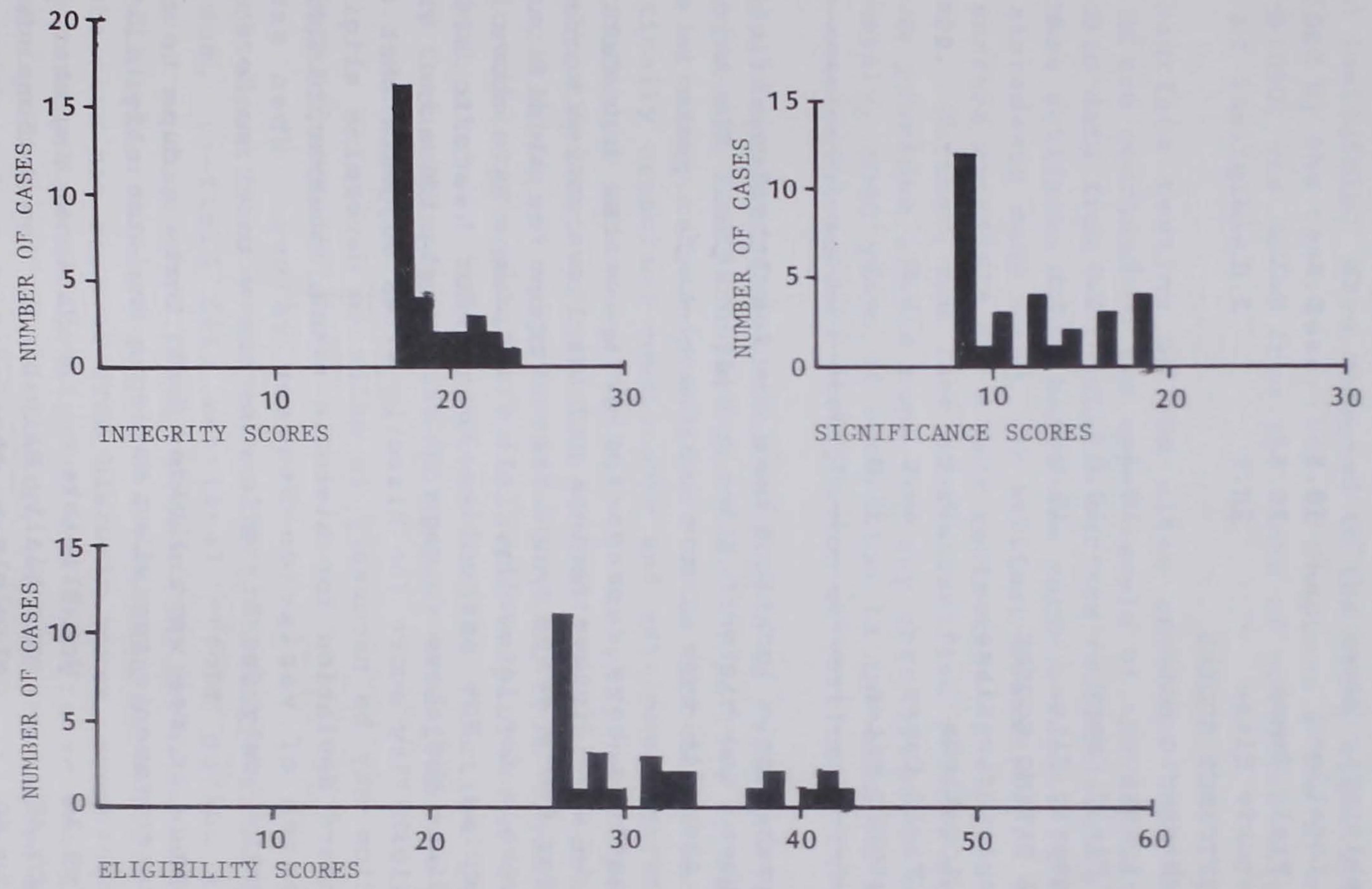

Figure 36. National Register Rating Scores

Table 20. National Register Scores by Site Type.

	Mean	Standard Deviation	Number of Cases
INTEGRITY SCORES			
Prehistoric Sites			
Locations	18.3	0.6	20
Field Camps	22.1	0.7	6
Historic Sites	20.5	2.0	4
SIGNIFICANCE SCORES			
Prehistoric Sites			
Locations	10.3	1.9	20
Field Camps	18.0	1.0	6
Historic Sites	15.0	2.4	4
TOTAL RATING SCORES			
Prehistoric Sites			
Locations	28.6	2.2	20
Field Camps	40.2	1.6	6
Historic Sites	35.8	4.3	4

cases, prehistoric locations have the lowest values, field camps the highest, and historic sites a median value. The corollation between the site type scores and the histogram peaks is evident.

Locations have average integrity scores but fall below average in significance ratings and total evaluation scores. The scores for field camps range from average for significance, to above average for integrity. All field camps have above average total scores. The respective values for historic sites are intermediate and above average in all but significance. The mean total eligibility score for historic sites suggests that further examination may be necessary in order to determine eligibility. The standard deviation for historic sites, however, indicates a wide degree of variation between values. When examined individually, only one historic site has a total score above 34.

Ratings scores were divided into three groups to convert them into statements regarding National Register eligibility:

24 to 34	Not Eligible to the National Register
35 to 49	Potentially Eligible to the National Register
50 to 60	Eligible to the National Register

Based on survey and testing data, seven sites within the project area were assigned scores between 35 and 49 which suggested they were potentially eligible for nomination to the National Register. These included historic site TY1091, and six prehistoric field camps: TY1075, TY1077, TY1086, TY1087, TY1088 and TY1103. The remaining sites, with values of 34 or less, appeared ineligible. When compared to the eight sites originally identified by the test described in Chapters 4 and 5, only one site (TY-1090) was moved from the ranks of potential eligibility to that of ineligible.

Subsurface testing of the sites revealed that cultural materials are confined to the upper levels of the deposit. When compared to data from an intensive surface reconnaissance of each site, those artifacts found below the surface repeat rather than add to statements made about the artifact assemblage. In other words, surface materials are a fair reflection of what is present subsurface. Further, the lack of a stratified deposit at any of the sites provides little hope for any chronological control. Unfortunately, 6000 years of occupation in the area is combined with no meaningful surface distribution or vertical stratigraphy.

Some degree of functional variation is evident at each of the prehistoric field camps, but on the whole they appear quite similar in nature. These prehistoric sites functioned as part of a logistically organized subsistence and settlement strategy for the procurement of resources within the pinyon-juniper zone. Similarly, the range of artifact variability at historic sites suggests a diverse range of life styles, but functionally, historic sites are related to mineral exploration at small individual claims. Similarities in the function of sites suggests that most of the archaeological data from the project area is redundant.

MANAGEMENT RECOMMENDATIONS

Limited artifact densities at the prehistoric sites required a maximum, in-field data retrieval effort during testing. Therefore, we feel that little remains in terms of additional data and their research potential has been exhausted. While artifacts were not removed from historic sites, archaeologically pertinent data has been collected and the stated research and evaluation goals met. In conclusion, we feel the tested sites do not merit in-place preservation and are not eligible to the

National Register of Historic Places. Further collection of artifacts from these sites would not add appreciably to the data base, and would only prove to be redundant. As a result, additional testing or further mitigation is unnecessary.

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APPENDIX A

Inventory of Historic Artifacts from Site TY-1086

Reference Number	Description
100	Aqua beer bottle neck frag., made for porcelain top.
101	W.F. and S. Milwaukee amber beer bottle base, Log Cabin tin, tobacco tin.
102	Schilling's Best 16 oz. baking powder tin.
103	A.B. Co. aqua bottle (beer) base, metal dish pan.
104	Schilling's Best 16 oz. baking powder tin.
105	Log Cabin tin.
106	Amethyst, threaded Mason jar rim.
107	Two Log Cabin tins (one small).
108	steel cut tobacco tin, A.B. Co. aqua beer bottle base.
109	Amber beer bottle (whole but piece missing from side, R112 on bottom edge), Royal Baking Powder Absolutely Pure Full Wt. 1/2 lb, oil can, barrel hoop, stove edge fragment.
110	A.B. Co. amber beer bottle base, aqua beer bottle fragments, three boot eyelets, melted amethyst pumpkin seed whiskey flask fragments, two amber beer bottles in fragments, shoe/boot leather, small Log Cabin tin, two large Log Cabin tins, Schilling's Best baking powder tin, small steel cut tobacco tin, lots of bottle cap wire, ceramic white porcelain cup fragment.
111	Very small, thin amethyst bottle fragments, Schilling's best baking powder tin, amethyst whiskey bottle fragments, neck/shoulder fragment of amber whiskey bottle (1893-1918) "Wright and Taylor Distillery, Louisville, Ky" (photographed), amethyst whiskey bottle fragment, W. F. and S. Milwaukee amber beer bottle base, large metal top fragment (Barrel) "Anti-Wedge, G. & P2", two Log Cabin tins, Folger's Coffee (Golden Gate), hinge-lidded tea tin.
112	Half of a pair of eyeglasses (photographed/sketched).
113	Brass talcum powder cap (pat. March 27, 1906), white Dresden Hite-Granite ceramic plate fragment, white earthenware dish fragments, amethyst beer bottle fragment(?), hinged rectangular tin (photographed).
114	Walter Baker and Co. Limited breakfast cocoa lid, aqua beer bottle fragments, amethyst whiskey bottle fragment, Hills Bros. coffee can lid "Packed and Guaranteed by Hills bros., San Francisco", amethyst medicine bottle fragment.
115	Amethyst condiment (?) bottle base fragment (melted, fluted), amber whiskey bottle neck fragment, white ceramic plate fragments, dark green wine bottle base fragment with kickup.
116	Square tea tin "Lipton Tea, Coffee and Cocoa Planter, Ceylon", two-hole shell button (collected), aqua beer bottle fragment, cooking pot with handle.

Inventory of Historic Artifacts from Site TY-1086 (cont.)

Reference Number	Description
117	Stove leg, lid of J. S. Fry and Sons Limited--Chocolate and Cocoa Manufacturers--Bristol and London, Royal Baking Powder lid 2.5 lb, clear glass bottle neck fragment (beer?).
118	Log Cabin tin, leather boot with eyelets.
119	2-1/2 lb baking powder tin, two Log Cabin tins (one large, one small), aqua W. F. and S. beer bottle base.
120	Aqua W. F. and S. beer bottle base.
121	1 lb Royal baking powder tin.
122	Green wine bottle neck fragment (turn mold)
123	Electric vacuum tube (photographed).
124	W. F. and S., Milwaukee amber beer bottle (lip missing).
125	Two Log Cabin tins.
126	One Log Cabin tin.
127	Spice can lid (Colburn's Spices, Mustard, Extracts, Condiments, etc., The Standard Goods of America".
128	Amber beer bottle (neck broken, two piece mold), green wine bottle glass fragments, fine mesh screen fashioned into top, amethyst whiskey bottle base.
129	Lid "Bristol and London Chocolate and Cocoa".
130	Amethyst medicine bottle fragment, aqua beer bottle fragments, stopper wire.
131	Baking soda tin lid "Golden Gate, Sold on Merit" 16 oz net (sketched).
132	Two "Boss of the Road" overall stud buttons (collected), large aqua bottle base fragment, amber beer bottle fragments.
133	Amethyst whiskey bottle top fragments.
134	Stove (photographed), W. F. and S. amber beer bottle (neck missing).
135	Amethyst whiskey bottle neck, tin can fragment "Packed by the H. L. Griffin Company, Ogden, Utah" (Reverse: "Mt. Brand, Baltimore").
136	Amethyst pumpkin seed whiskey bottle base melted.
137	Large aqua condiment(?) jar fragment.
138	Amethyst condiment bottle neck fragment "Curtice Bros Preserves" (sketched).
139	Amethyst glass syringe fragment.
140	Levi Strauss and Co, San Francisco stud button (collected).
141	Amethyst barrel mustard fragment, rectangular tea tin with hinged lid, aqua beer bottle base and neck, Schilling product spice tin, J. S. Fry and Sons Chocolate and Cocoa tin.
142	Two Log Cabin tins, Folger's Golden Gate 16 oz net lid, amethyst baking powder tin 2-1/2 lb, amethyst Mason jar rim fragment, large clear glass paneled

Inventory of Historic Artifacts from Site TY-1086 (cont.)

Reference Number	Description
	medicine bottle neck and body fragments, green wine bottle fragment, one Log Cabin tin.
143	Wine bottle base fragment, clear glass condiment jar with part of lip missing, amethyst barrel mustard base fragment, clear glass bottle base with embossed horseshoe and star (content unknown, possibly soda water), clear glass medicine bottle fragment, metal handle fragment, clear glass ink bottle fragment, W. F. and S. Milwaukee amber bottle base, Log Cabin tin, metal mason jar lid, tin lid "safe seal" (detailed on sketch).
144	Amethyst pumpkin seed lip and neck fragment, aqua plate glass.
145	Lipton tea tin (photographed), metal lamp gallery part, amethyst condiment jar fragment, five Log Cabin tins, aqua beer bottle base, white ceramic cup fragment, clear glass, fluted catsup bottle neck/body fragment.
146	Log Cabin tin, dark olive green wine bottle fragments.
147	California Cap Co., San Francisco blasting cap can (sketched).
148	Amethyst condiment (?) bottle base.
149	Mule shoe, clear rectangular glass medicine bottle base.
150	Broken aqua ink bottle "Sanfords", Hills Bros. coffee tin, two Log Cabin tins, 1 lb. Royal baking powder tin, clear glass fragments, Golden Gate lid.
151	"Boss of the Road" button.
152	Metal buckle, amethyst glass fragments.
153	One metal stud button (collected), one "Boss of the Road" stud button (collected).
154	Amethyst catsup bottle "F" on base (cracked but whole).
155	Shell button fragment (collected).
156	Schilling's tin lid, aqua beer bottle neck.
157	Suspender clasp (?)(collected).
158	Metal clasp(?)(collected).
159	Probable foundations stones, pieces of milled lumber, amethyst condiment bottle neck (photographed), aqua plate glass fragments, clear fluted catsup bottle "P/G", aqua beer bottle base A. B. Co.
160	Four-hole white shell button (collected).
161	Four-hole white shell button (collected).

Inventory of Historic Artifacts at Site TY-1087

Reference Number	Description
2	Two posts (burned) with twisted wire - appears to have been some type of latch meant to tie the two together. Probably associated with Reference # 3.
3	Probable cabin depression with very sparse associated tin can scatter and small stove top; cabin dimensions are approximately 5' x 10'. Some chert and obsidian flakes scattered around depression. Tin scatter consists of three tobacco tins, sardine can, and a milk can. The depression lies approximately 10' from the stove; the entire trash area is about 15' in diameter.

Inventory of Historic Artifacts at Site TY-1091

Reference Number	Description
Ref. #1:	Aqua Mason jar rim fragment
Ref. #2:	Abundance of melted glass--aqua and clear, aqua glass mustard jar fragment, milk glass Mentholatum jar fragment, aqua beer bottle base fragment, aqua Mason jar fragments, aqua jar fragment with screw cap, clear glass fluted catsup bottle fragments (neck and body), aqua peppersauce bottle fragment, miscellaneous tin (oil cans, plate, and cup of graniteware), spice tins, and alarm clock.
Ref. #3:	Ponds cold cream jar fragment, "Homer Laughlin Made in USA, D and Ns..." ceramic bowl fragment, Mentholatum jar base fragment, aqua beer bottle neck with crown cap, amethyst fluted glass fragment, spice can, stove door fragments, canister lid fragment, ceramic fragments (part of Homer Laughlin bowl), porcelain canning jar lid liner fragment, brown beer bottle body fragment and neck made for crown cap, melted glass, dark green wine bottle fragment, condiment jar fragment with screw cap, clear glass catsup bottle base, neck, and body fragments (embossed on base: "California Conserving Co., San Francisco), clear glass medicine bottle fragment with screw cap, round nails, bottle cap opener, brown whiskey bottle neck fragment, melted clear glass catsup bottle, melted clear glass catsup bottle with base missing, pink floral patterned ceramic plate fragment, and piled rock feature (probable foundation depression).
Ref. #4:	Cabin
Ref. #5:	Graniteware pan with bail and one handle on side, miscellaneous tin cans, oil can fragments, brown crown cap beer bottle fragment, rectangular lunch box with two handles and hinged lid, white porcelain cup fragment, miscellaneous tin food cans, Schilling baking powder can, round tobacco canister with lid, and round-end shovel head.
Ref. #6:	Tin scatter, amethyst glass lamp chimney fragments, fluted condiment jar fragment, square tobacco tin with bail handle, metal aqua plate glass fragments.
Ref. #7:	Stove parts.
Ref. #8:	Aqua, clear glass fragments.
Ref. #9:	Tin lard can with wire bail handle top: "To open insert coin under edge of cover and twist."
Ref. #10:	Glass scatter, amethyst glass, clear glass catsup bottle fragment, amethyst pumpkin seed whiskey flask fragments, amber pumpkin seed whiskey flask fragments, amethyst prescription bottle fragment with gradations.
Ref. #11:	Round oil can with top screw cap and small hole for spout near edge, cylindrical; wire handle on top, hole-in-top tin cans.

Reference Numbers Assigned at Site TY-1091

Reference Number	Description
Ref. #12:	Scatter of tin cans (75+ downslope from oil can), graniteware dish pan, hole-in-top cans, tobacco tins, bucket fragment, baking powder canister ("Royal baking powder full weight 2 1/2 lb, Absolutely Pure").
Ref. #13:	Tin can scatter (20+ hole-in-top cans).
Ref. #14:	Clear glass prescription bottle base fragment with gradations ("9 0 9" [dates 1911-1929]), coffee tin.
Ref. #15:	Tin can scatter (15+ [fallen downslope from top]), aqua beer bottle fragment, Hazel Atlas bottle base fragment (1920-1964), Lipton tea can (square embossed base "Lipton Tea, Coffee and Cocoa Planter Ceylon).
Ref. #16:	Windbreak.

APPENDIX B

Type	Site No.	Spec. No.	Material	Portion	L_S	L_T	L_A	L_M	W_M	W_B	TN	Wt.	Est. Wt.	NW	DSA	PSA	NOI	(BIR)	L_T/W_M	W_B/W_M	Max. Wpos.	Comments
DSN	TY1075	5-1	Obsidian	Base/mid	17.0	(25.3)	(23.7)	---	12.4	12.4	2.6	0.4	0.6	9.4	213	122	91	0.93	2.00	1.00	---	
DSN	TY1087	23-1	Chert	Base/mid	13.8	(25.2)	(23.4)	---	14.1	14.1	3.2	1.2	1.6	8.5	233	149	84	0.93	1.78	1.00	---	
CT	TY1075	4-1	Chert	Base/mid	20.2	(30.0)	(30.6)	---	13.3	12.8	4.5	1.0	1.3	---	---	---	--	0.98	2.30	0.96	---	
RG	TY1075	7-1	Chert	Base/mid	21.6	(37.8)	(37.8)	---	18.6	7.5	3.5	1.4	1.9	6.0	125	101	24	1.00	2.30	0.40	---	
RG	TY1075	8-2	Chert	Base	13.7	(35.0)	(35.0)	---	20.0	7.8	3.6	1.0	1.8	7.4	121	106	15	1.00	1.80	0.39	---	
RG	TY1075	12-1	Chert	Base/mid	26.2	(45.4)	(45.4)	---	15.5	6.6	3.3	1.6	2.1	6.6	123	113	10	1.00	2.90	0.43	---	
RG	TY1077	26-1	Chert	Base	23.5	(36.4)	(36.4)	---	20.8	9.0	3.5	1.4	1.8	9.4	117	99	18	1.00	1.75	0.43	---	
RG	TY1086	3-1	Chert	Base/mid	21.6	(39.0)	(39.0)	---	16.7	8.8	3.6	1.3	1.9	6.4	135	121	14	1.00	2.33	0.52	---	
RG	TY1088-346	1-1	Obsidian	Base/mid	33.8	(49.1)	(49.1)	---	17.0	9.6	4.1	2.3	3.0	6.6	135	120	15	1.00	2.89	0.56	---	
RG	TY1088	20-1	Obsidian	Base/mid	20.4	(33.1)	(33.1)	---	18.9	9.8	2.8	0.9	1.2	8.8	116	105	11	1.00	1.75	0.51	---	
RG	TY1090*	3-1	Chert	Base/mid	31.2	(36.3)	(36.3)	---	19.2	10.6	2.8	1.8	2.1	9.6	161	103	58	1.00	1.80	0.55	---	
RG	TY1090*	2-1	Chert	Base/mid	35.3	(54.6)	(54.6)	---	20.6	8.9	3.3	2.1	2.8	7.9	124	99	25	1.00	2.65	0.43	---	
RG	TY1092-350	1-2	Chal.	Comp.	30.7	30.7	30.7	---	17.2	9.0	3.9	1.7	1.7	6.7	145	125	20	1.00	1.78	0.52	---	
RG	TY1092-350	1-3	Chert	Comp.	26.2	26.2	26.2	---	14.1	8.0	2.7	0.8	0.8	6.9	118	118	0	1.00	1.86	0.57	---	
LSN	TY1077	24-1	Chal.	Comp.	37.5	37.5	33.4	---	22.2	20.8	5.5	4.2	4.2	18.1	237	138	99	0.87	1.68	0.93	---	
LSN	TY1078-336	4-1	Chert	Base/mid	27.1	(48.1)	(48.1)	---	23.6	20.5	5.2	4.1	6.0	16.0	200	117	83	1.00	2.04	0.87	---	
LSN	TY1087	46-2	Obsidian	Base/mid	16.2	(38.4)	(38.4)	---	16.5	15.7	3.3	1.0	1.8	10.4	152	149	3	1.00	2.32	0.95	---	
LSN	TY1091-349	1-1	Obsidian	Base/mid	32.9	32.9	32.9	---	19.3	15.5	3.6	1.7	1.9	7.7	163	160	3	1.00	1.70	0.80	---	
LSN	TY1101-359	3	Chert	Base/mid	43.1	43.1	41.0	---	17.5	17.5	4.2	1.9	2.5	9.7	202	180	22	0.95	2.46	1.00	---	
ECN	TY1075-333	1-2	Obsidian	base/mid	20.3	27.6)	(26.6)	---	18.1	11.4	4.2	1.3	1.4	8.6	187	120	67	0.96	1.52	0.63	---	
ECN	TY1085-343	1-9	Chert	Base	16.0	(46.5)	(46.5)	---	20.5	11.2	4.2	1.4	2.4	10.2	130	120	10	1.00	2.27	0.55	---	
ECN	TY1087-345	1-1	Chert	Base/mid	25.9	(44.7)	(44.7)	---	41.7	27.2	5.0	4.3	5.8	20.9	143	116	27	1.00	1.07	0.65	---	Resharpened
ECN	TY1087-345	1-3	Obsidian	Base	14.0	(36.8)	(36.4)	---	22.1	10.1	3.0	1.1	2.3	8.9	128	110	21	1.00	1.67	0.46	---	
ECN	TY1087	10-1	Chert	Base	24.3	(57.4)	(55.4)	---	21.5	13.8	4.8	2.9	5.7	11.0	136	118	18	0.96	2.66	0.64	---	
ECN	TY1088	14-1	Chert	Base	16.3	(23.6)	(23.6)	---	21.7	21.7	4.4	2.0	6.0	15.0	159	146	13	1.00	1.08	1.00	---	
ECN	TY1088	19-1	Chert	Base	19.2	(37.5)	(36.3)	---	21.2	12.9	3.8	1.6	2.1	10.4	160	122	38	0.96	1.76	0.59	---	
ECN	TY1098-356	1-1	Chert	Base/mid	23.2	(32.2)	(30.2)	---	24.4	19.0	4.4	2.5	2.6	16.8	146	125	21	0.94	1.32	0.78	---	
ECN	TY1104-362	1-2	Chert	Base	19.1	(35.9)	(35.9)	---	(23.0)	(11.7)	4.0	1.1	2.5	(10.5)	(147)	(112)	(50)	1.00	1.56	0.51	---	
EE	TY1077	25-1	Chert	Base/mid	16.1	(42.9)	(39.5)	---	25.5	13.7	4.6	2.4	4.5	12.6	111	151	40	0.92	1.68	0.53	---	
EE	TY1077	36-1	Obsidian	Base/mid	24.0	(30.7)	(26.0)	---	19.1	12.0	5.6	2.0	2.2	11.5	163	126	37	0.84	1.60	0.62	---	
EE	TY1087	1-1	Chert	Base/mid	34.6	(47.9)	(39.6)	---	29.5	21.5	4.5	4.5	5.5	19.0	157	114	43	0.82	1.62	0.72	---	

Type	Site No.	Spec. No.	Material	Portion	LS	LT	LA	LM	WM	WB	TN	Wt.	Est. Wt.	NW	DSA	PSA	NOI	(BIR)	LT/WM	WB/WM	Max. Wpos.	Comments
EE	TY1087	1-2	Chert	Base	22.4	(49.8)	(42.5)	---	23.6	22.6	5.5	2.6	3.8	19.0	228	127	101	0.85	2.11	0.96	---	
EE	TY1100-358	1-1	Chert	Base/mid	23.2	(37.4)	(34.8)	---	21.7	12.0	3.8	2.2	2.8	10.6	162	118	44	0.93	1.72	0.55	---	
EE	TY1103-361	1-2	Obsidian	Base/mid	24.0	(28.2)	(26.2)	---	21.1	17.1	7.1	3.0	3.4	15.9	221	112	109	0.93	1.34	0.81	---	
EE	TY1103-361	1-4	Obsidian	Base/mid	25.2	(31.3)	(28.0)	---	21.6	16.8	4.8	2.1	2.3	9.4	144	131	13	0.89	1.45	0.78	---	Edges ground
EE	TY1104-362	1-1	Chert	Base/mid	27.3	(42.6)	(39.7)	---	19.2	13.8	5.2	2.6	3.4	10.0	193	111	82	0.93	2.15	0.72	---	
GATE	TY1087	5-1	Chert	Base	25.1	(46.1)	(46.1)	---	26.6	6.7	4.6	2.4	3.9	10.3	186	72	114	1.00	1.73	0.25	---	Cont. Stem
GATE	TY1087	17-1	Chert	Base	22.0	(47.4)	(47.4)	---	24.6	10.3	5.5	2.4	4.8	5.2	184	69	115	1.00	1.93	0.42	---	Cont. Stem
GATE	TY1088	25-1	Chert	Base	24.2	(61.4)	(57.4)	---	26.7	11.0	5.0	3.1	8.0	11.4	131	68	63	0.93	2.29	0.41	---	Split Stem
GATE	TY1103-361	1-1	Obsidian	Comp.	28.9	28.9	25.4	---	19.7	17.1	6.7	3.0	3.0	15.5	201	100	101	0.88	1.47	0.87	---	
HS	TY1077	30-1	Chert	Base/mid	50.0	(96.7)	(87.4)	49.4	26.1	19.5	7.7	8.6	13.0	---	---	---	---	0.90	3.70	0.36	0.51	
HS	TY1086-344	1-1	Chert	Base	21.0	(47.8)	(45.5)	13.0	25.0	21.2	5.5	3.2	5.2	---	---	---	---	0.95	1.91	0.83	0.27	Battered Base
HS	TY1097	43-1	Chert	Base	19.9	(49.9)	(44.7)	---	19.0	16.2	4.8	2.0	5.5	---	---	---	---	0.89	2.62	0.85	---	
HS	TY1090-348	1-1	Chert	Base/mid	29.9	(53.4)	(50.1)	18.7	18.7	16.5	5.4	3.3	4.7	---	---	---	---	0.94	2.86	0.88	0.28	
HS	TY1103-361	1-3	Chert	Base/mid	27.2	(38.2)	(37.1)	13.2	15.5	8.0	5.6	2.8	3.0	---	---	---	---	0.97	2.41	0.52	0.35	
GBS	TY1089-347	1-1	Chert	Base/mid	47.8	(80.1)	(80.1)	(29.3	30.5)	6.9	6.6	8.2	10.0	---	246	82	164	1.00	2.63	0.23	0.37	
UNK	TY1077	33-1	Obsidian	Base/mid	22.4	(41.0)	(37.6)	---	16.1	16.1	4.1	1.2	2.0	---	---	---	---	0.91	2.55	1.10	---	(HS?)
UNK	TY1087	18-1	Chert	Base/mid	26.7	(41.8)	(38.9)	---	19.4	13.5	4.3	2.1	3.0	10.0	---	---	---	0.93	1.34	0.69	---	(EE?)
UNK	TY1101	1-2	Chert	Comp.	29.7	29.7	27.0	2.9	15.4	15.1	5.0	1.9	1.9	---	---	---	---	0.91	1.95	0.98	---	(HS?)
UNK	TY1103	12-1	Chert	Base/mid	16.0	(33.8)	(32.6)	---	17.9	17.9	5.1	1.6	3.0	---	---	---	---	0.96	1.88	1.00	---	(HS?)

Measurements are in millimeters and grams; numbers in parentheses are estimated

Abbreviations:

LSN - Large Side-notched
HS - Humboldt Series
ECN - Elko Corner-notched
EE - Elko Eared
RGS - Rosegate Series
DSN - Desert Side-notched
GATE - Gatecliff
GBS - Great Basin Stemmed Series

Spec. No. - Specimen Number (1Temporary Site Number is appended);
LS - Actual Length;
LT - Total Length;
LA - Length of Longitudinal Axis;
LM - Length from Proximal End of Point to the Maximum Width;
WM - Maximum Width;
WB - Basal Width;
TN - Thickness;
MaxWpos - Maximum Width Position, LM/LT x 100;
NC - Not Collected;

Wt. - Weight in Grams;
NW - Neck Width;
DSA - Distal Shoulder Angle, between 90°-270°;
PSA - Proximal Shoulder Angle, between 0°-270°;
NOI - Notch Opening Index;
BIR - Basal Indentation Ratio, LA/LT;
Chal. - Chalcedony

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CULTURAL RESOURCE REPORTS

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Jerry Wylie and Tom Scott
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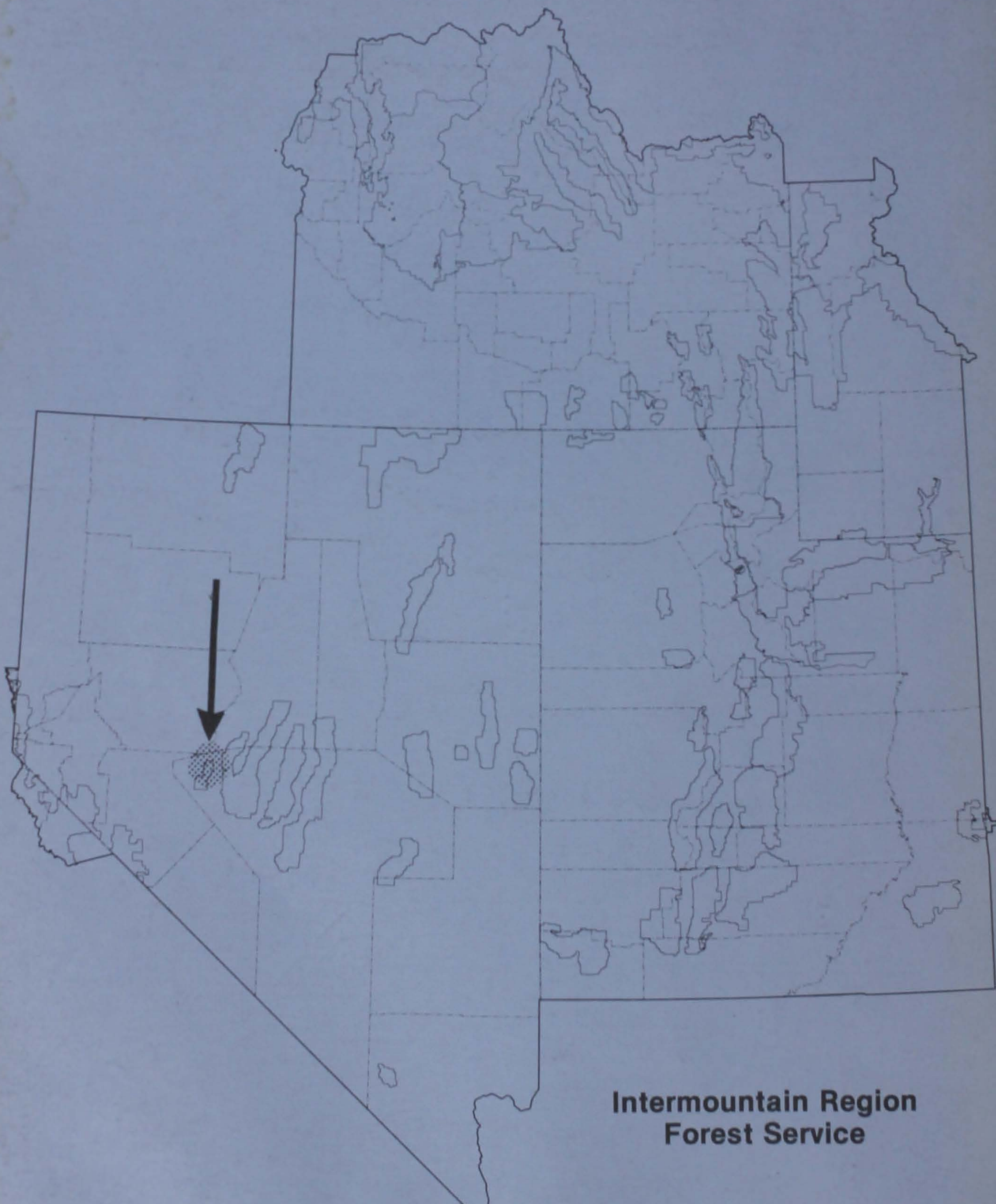

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